Installation and Service Instructions

for use by heating contractor

Vitotronic 300, Type GW5B
Digital boiler control unit

Vitotronic 300-K, Type MW1B
Weather-compensated digital cascade control unit

VITOTRONIC 300, GW5B
VITOTRONIC 300-K, MW1B

Vitotronic 300, GW5B

Vitotronic 300-K, MW1B

Certified as a component part for Viessmann boilers

Product may not be exactly as shown

IMPORTANT

Read and save these instructions for future reference.

5693 973 - 05 02/2015

Please file in Service Binder

Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation. Failure to comply with the instructions listed below and details printed in this manual can cause product/property damage, severe personal injury, and/or loss of life. Ensure all requirements below are understood and fulfilled (including detailed information found in manual subsections).

- **Product documentation**
  Read all applicable documentation before commencing installation. Store documentation near boiler in a readily accessible location for reference in the future by service personnel.

  ▶*For a listing of applicable literature, please see section entitled "Important Regulatory and Safety Requirements".*

- **Licensed professional heating contractor**
  The installation, adjustment, service and maintenance of this equipment must be performed by a licensed professional heating contractor.

  ▶*Please see section entitled "Important Regulatory and Installation Requirements".*

- **Advice to owner**
  Once the installation work is complete, the heating contractor must familiarize the system operator/ ultimate owner with all equipment, as well as safety precautions/requirements, shutdown procedure, and the need for professional service annually before the heating season begin.

- **Warranty**
  Information contained in this and related product documentation must be read and followed. Failure to do so renders the warranty null and void.

⚠ WARNING

Installers must follow local regulations with respect to installation of carbon monoxide detectors. Follow the Viessmann maintenance schedule of the boiler contained in this manual.

Operating and Service Documentation

It is recommended that all product documentation such as parts lists, operating and service instructions be handed over to the system user for storage. Documentation is to be stored near boiler in a readily accessible location for reference by service personnel.

Product Information

Vitotronic 300, Type GW5B
For installation in or mounting on Viessmann boilers only.
Applicable to the following control units

Order No. 7134555, 7143156, 7511362 from
Serial No. 7143000□□□□□□□□□

Order No. 7134555, 7143156, 7511362 from
Serial No. 7187101□□□□□□□□□

Order No. 7134555, 7143156, 7511362 from
Serial No. 7248248□□□□□□□□□

Page

General

Safety, Installation and Warranty Requirements....2
Product documentation....2
Warranty....2
Licensed professional heating contractor....2
Advice to owner....2
Operating and Service Documentation....2
Product Information....2

Safety

About these Instructions....6
For your Safety....7
Operation....7
Flue gas smell....7
Working on the equipment....7
Maintenance and cleaning 7
Technical Data Manual....7
If you smell gas....7
In emergencies....7
Installation of additional components....7
Boiler room conditions....7
Safety Terminology....7

Preparing for Installation

Designation in the System Example....8
Overview of System Example....8
System Example....9

Installation, Vitotronic 300, GW5B

Overview of Electrical Connections....15
120V External Connection Overview....17
Inserting Cables and Applying Strain Relief....18
Inserting the Boiler Coding Card....18
Inserting the LON Communication Module....19
Connecting Sensors....19
120V External Connection....19
Connecting Actuators....21
Connection the Central Fault Massage Facility....22
Connection of low Water Cut-off Device....22
Connections to Terminal 150....23
Connections to Terminal 151....23
Blocking Boiler Externally / Adding to the Boiler Sequence...24
Connecting a Burner....25
Preparing Boilers for Cascade Mode....25

Installation, Vitotronic 300-K

Overview of Electrical Connections....26
Mounting the Control Unit....28
Inserting Cables/Leads and Applying Strain Relief....29
Connecting Pumps....30
Connecting Sensors....31
120V External Connection....32
Connecting Actuators....33
Connection Central Fault Massage Facility....34
External Demand Via Switching Contact....34
External Demand via 0-10V Input....35
External Blocking via Switching Contact....35
External "Mixing Valve Closed" / "Mixing Valve Open"....36
External Heating Program Changeover....36
Making the LON Connection....37

Page

Power Supply
Power Supply....38

Opening and Closing the Control Units
Fitting the Control Unit Front....39
Opening the Control Unit....39

Commissioning
Testing the High Limit Safety Cut-out....40
Changing the Language on the Vitotronic 300-K....40

Preparing for Installation
Setting the Date and Time the Vitotronic 300-K....40
Matching the Coding Addresses to the System Version....41
Selecting the Boiler Sequence at the Vitotronic 300-K...42
Connecting the Control Unit to the LON....43

Installation Sequences
Checking Actuators and Sensors at the Vitotronic 300 GW5B....46
Checking Actuators and Sensors at the Vitotronic 300-K....47
Adjusting Heating Curves....48

Service Scans, Vitotronic 300, GW5B
Calling up Service Menu....50
Exiting Service Menu....50

Service Scans, Vitotronic 300-K
Calling up Service Menu....51
Scanning Operating Data....51
Brief Scan....52
Scanning and Resetting Service Display....52

Troubleshooting, Vitotronic 300, GW5B
Fault Codes....53

Troubleshooting, Vitotronic 300-K
Fault Display....55
Fault Codes....56

Function Description
Boiler Temperature Control of the Vitotronic 300 GW5B....60
Cascade Control of the Vitotronic 300-K....62
Heating Circuit Control Unit of the Vitotronic 300-....65
DHW Tank Temperature Control of the Vitotronic 300-K....69

Page

Code 1, Vitotronic 300, GW5B
Calling up Coding Level 1....71
Group 1 "General"....71
Group 2 " Boiler"....72

Code 2, Vitotronic 300, GW5B
Calling up Coding Level 2....73
Group 1 "General"....74
Group 2 " Boiler"....78

Code 1, Vitotronic 300-K
Calling up Coding Level 1....79
"General" Group....80
"Cascade" Group....81
"DHW" Group....81
"Solar" Group....82
"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group....83

Code 2, Vitotronic 300-K
Calling up Coding Level 2....86
"General" Group....87
"Cascade" Group....92
"DHW" Group....93
"Solar" Group....95
"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group....98

Wiring, Vitotronic 300, GW5B
Connection and Wiring Diagram....103

Wiring, Vitotronic 300-K
Connection and Wiring Diagram....106

Components
Sensors....110
Boiler Coding Card....111
Mixing Valve Motor Kit....111
Extension EA1 Accessory (optional)....112

Parts Lists
Parts List Vitotronic 300, GW5B....113
Parts List Vitotronic 300-K....114

Specification
Specification Vitotronic 300, GW5B....115
Specification Vitotronic 300-K....115

About these Instructions

Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION", and "IMPORTANT". See below.

WARNING

Indicates an imminently hazardous situation which, if not avoided, could result in loss of life, serious injury or substantial product/property damage.

▶ *Warnings draw your attention to the presence of potential hazards or important product information.*

CAUTION

Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product/ property damage.

▶ *Cautions draw your attention to the presence of potential hazards or important product information.*

IMPORTANT

▶ *Helpful hints for installation, operation or maintenance which pertain to the product.*

▶

▶ *This symbol indicates that additional, pertinent information is to be found.*

▶ *This symbol indicates that other instructions must be referenced.*

For your Safety

⚠ CAUTION

Follow these safety instructions closely to avoid the risk of injury and damage to property.

- **Operation**
  Before operating the boiler, make sure you fully understand its method of operation. Your heating contractor should always perform the initial start-up and explain the system. Any warranty is null and void if these instructions are not followed.
- **Flue gas smell**
  - Deactivate heating equipment.
  - Open windows and doors.
  - Inform your heating contractor.
- **Working on the equipment**
  All personnel working on the equipment or the heating system must have the proper qualifications and hold all necessary licenses. Ensure main power to equipment, heating system, and all external controls has been deactivated. Close main gas supply valve. Take precautions in all instances to avoid accidental activation of power during service work.
- **Dangerous conditions**
  - Deactivate main power immediately.
  - Close gas supply valve.
- **Maintenance and cleaning**
  Regular inspection and service by a qualified heating contractor is important to the performance of the boiler. Neglected maintenance impacts on warranty; regular inspection ensures clean, environmentally friendly and efficient operation. We recommend a maintenance contract with a qualified heating contractor.
- **Technical Data Manual**
  - Installation Instruction and Service Instructions
  - Operating Instructions and User's Information Manual

Additional applicable literature:
- Accessory manuals

If you smell gas

- Don't smoke! Don't use naked flames or cause sparks (e.g. by switching lights or electrical appliances on and off)
- Open windows and doors
- Close the gas shut-off valve
- Inform your heating engineers/service contractors from outside the building
- Observe the safety regulations of your gas supply company (see gas meter) and those of your heating engineers (see start-up or instruction report).

In emergencies

- Immediately switch off the power supply, e.g. at the separate fuse or power supply disconnect switch (unless there is a smell of gas).
- Close the shut-off valves in the oil pipes or close the gas shut-off valve, whichever applicable.
- Use suitable extinguishers in the event of fire.

Installation of additional components

The installation of additional components which have not been tested together with the boiler can adversely affect the function and performance of the boiler.
Our warranty does not cover and weaccept no liability for damage attributable to the installation of such components.

Boiler room conditions

- Do not use a room in which the air is polluted by halogenated hydro-carbons (e.g. as contained in aerosols, paints, solvents and cleaning agents)
- Do not use a room subject to high levels of dust
- Do not use a room subject to permanently high humidity
- The room should be frost-protected
- Max. ambient temperature 95° F (35° C).
- Provide good ventilation and do not close or obstruct vents (if installed).

This symbol indicates a reference to other instructions which must be observed.

Safety Terminology

⚠ Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING" and "CAUTION". See below.

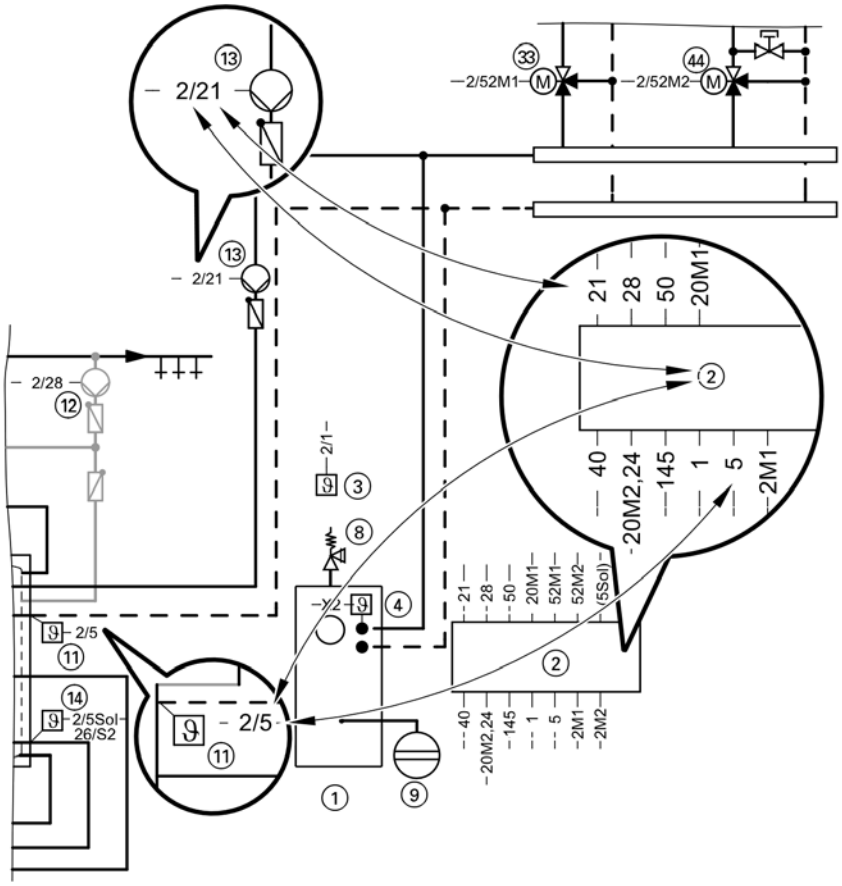
⚠ WARNING

Indicates an imminently hazardous situation which, if not avoided, could result in substantial product / property damage, serious injury or loss of life.

⚠ CAUTION

Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product / property damage.

Designations in the System Example



Overview of System Example

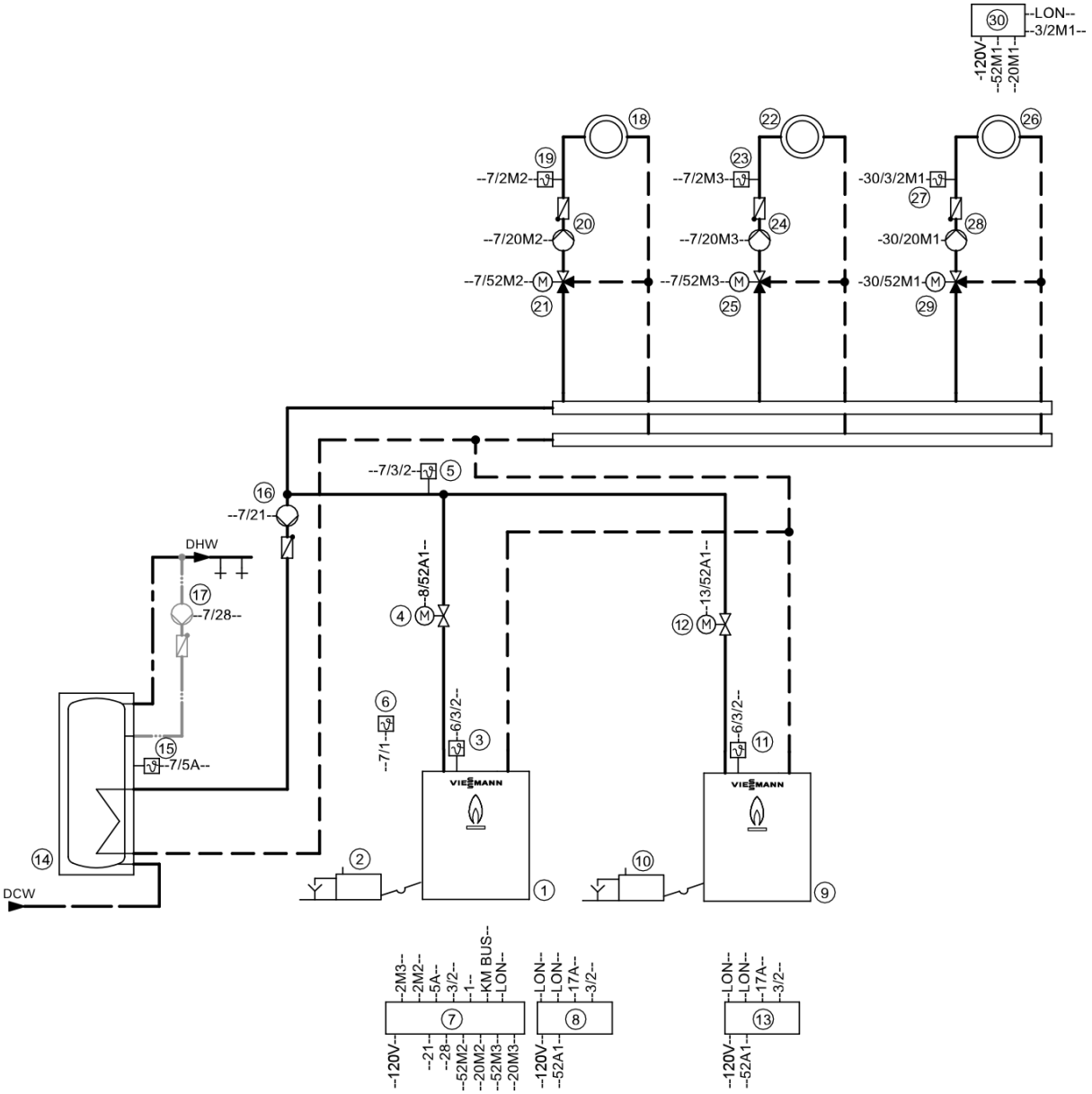
Boiler	Characteristics	Page
Vitocrossal, 200 CM2	Multi-boiler installation	9

- This system example is merely a generic layout and must therefore be checked on site for completeness and function.
- Connect three-phase consumers via additional contactors.
- With the Vitotronic 300-K, the communication module is integrated.

System Example

Multi boiler system: Vitocrossal 200 CM2

Hydraulic installation layout



Note: This layout is a basic example without shut-off devices or safety equipment. This does not replace the need for local engineering.

System Example *(continued)*

Equipment required

Pos.	Description
①	**Boiler I** (cascade mode)
②	Neutralizing system
③	Boiler water temperature sensor KTS
⑤	Supply temperature sensor, common heating supply VTS as contact temperature sensor (standard delivery for Vitotronic 300-K) or immersion temperature sensor
⑥	Outside temperature sensor ATS
⑦	Vitotronic 300-K
⑧	Vitotronic 300, GW5B
⑨	**Boiler II** (cascade mode)
⑩	Neutralizing system
⑪	Boiler water temperature sensor KTS
⑬	Vitotronic 300, GW5B
⑭	**DHW tank**
⑮	DHW tank temperature sensor STS
⑯	Circulation pump for DHW tank heating UPSB
⑰	DHW recirculation pump ZP
⑱	**Heating circuit 2**
⑳	Heating circuit pump M2 Extension kit for one heating circuit with mixing valve:
⑲	Supply temperature sensor M2 as contact temperature sensor and
㉑	Mixing valve motor M2 or
⑲	Supply temperature sensor M2 as contact temperature sensor or immersion temperature sensor and
㉑	Mixing valve motor for flanged mixing valve M2
㉒	**Heating circuit 3**
㉔	Heating circuit pump M3 Extension kit for one heating circuit with mixing valve:
㉓	Supply temperature sensor M3 as contact temperature sensor and
㉕	Mixing valve motor M3
㉓	or Supply temperature sensor M3 as contact temperature sensor or immersion temperature sensor and
㉕	Mixing valve motor for flanged mixing valve M3
㉖	**Heating circuit 1 at the Vitotronic 200-H**
㉘	Heating circuit pump M1 Extension kit for one heating circuit with mixing valve:
㉗	Supply temperature sensor M1 as contact temperature sensor and
㉙	Mixing valve motor M1 or

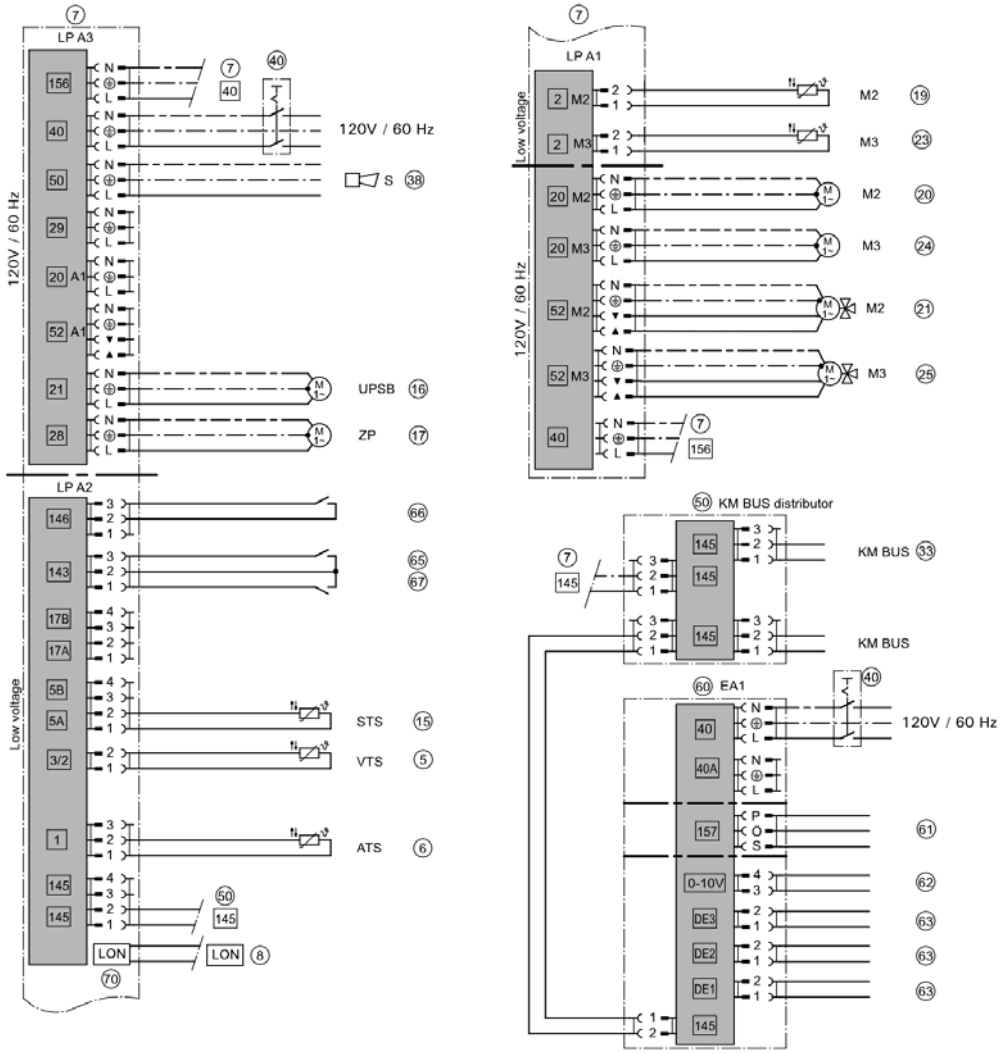
System Example *(continued)*

Equipment required

Pos.	Description
㉗	Supply temperature sensor M1 as contact temperature sensor or immersion temperature sensor and
㉙	Mixing valve motor for flanged mixing valve M1
㉚	Vitotronic 200-H and LON communication module (accessory) and LON connecting cable (accessory)
㉛	Outside temperature sensor ATS
	Boiler accessories
㉞	Connection to safety equipment [150] (see page 23)
㉟	Minimum pressure limiter SDB
㊱	Maximum pressure limiter SDB
㊲	Low water cutoff
㊳	Central fault message system
	External hook-ups
㊹	- External changeover of stepped/modulating burners
㊽	- External boiler blocking
㊾	- Start boiler externally as the last one in the boiler sequence
	System accessories
㉝	Vitotrol 200 A or Vitotrol 300 A
㊳	Central fault message system
㊵	ON/OFF switch
㊽	Vitocom 100 LAN1
㊿	KM BUS distributor, for several KM BUS participants
㊿	Extension EA1
㊶	1 switching output (floating changeover contact): - Switching a accessories pump to a substation - Signalling reduced mode for a heating circuit
㊷	1 analogue input (0–10V): - Specifying the set system supply temperature
㊸	3 digital inputs: External heating program changeover, separately adjustable for heating circuits 1 to 3 External demand External blocking with fault message Fault message input Short term operation of DHW recirculation pump
	External hook-ups
㊺	- External blocking/mixing valve closed
㊻	- External demand
㊼	- External heating program changeover/mixing valve open
㊿	LON communication module (standard delivery Vitotronic 300-K) for communication with the following components: Vitotronic boiler and heating circuit control units

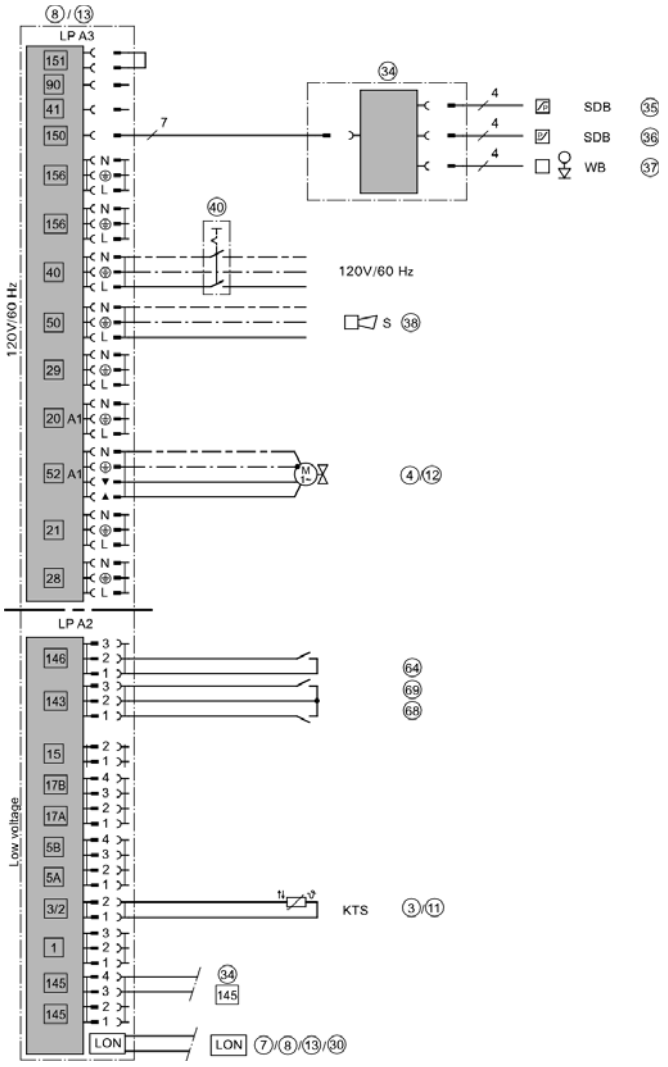
System Example *(continued)*

Electrical installation wiring

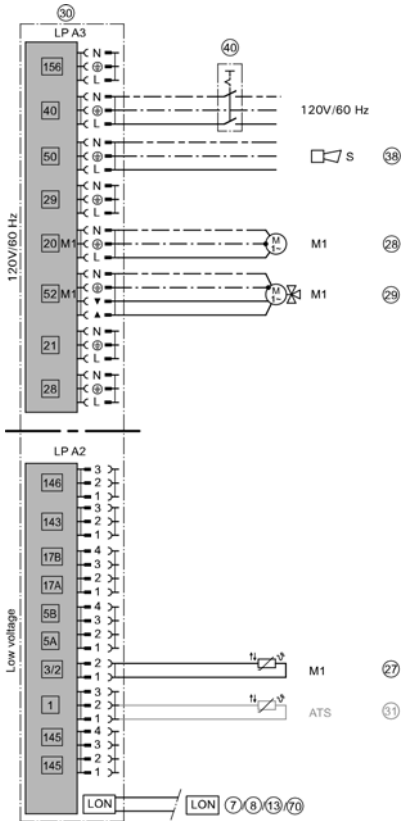


5693 973 - 05

System Example *(continued)*



System Example *(continued)*



Code required at every Vitotronic 300, GW5B

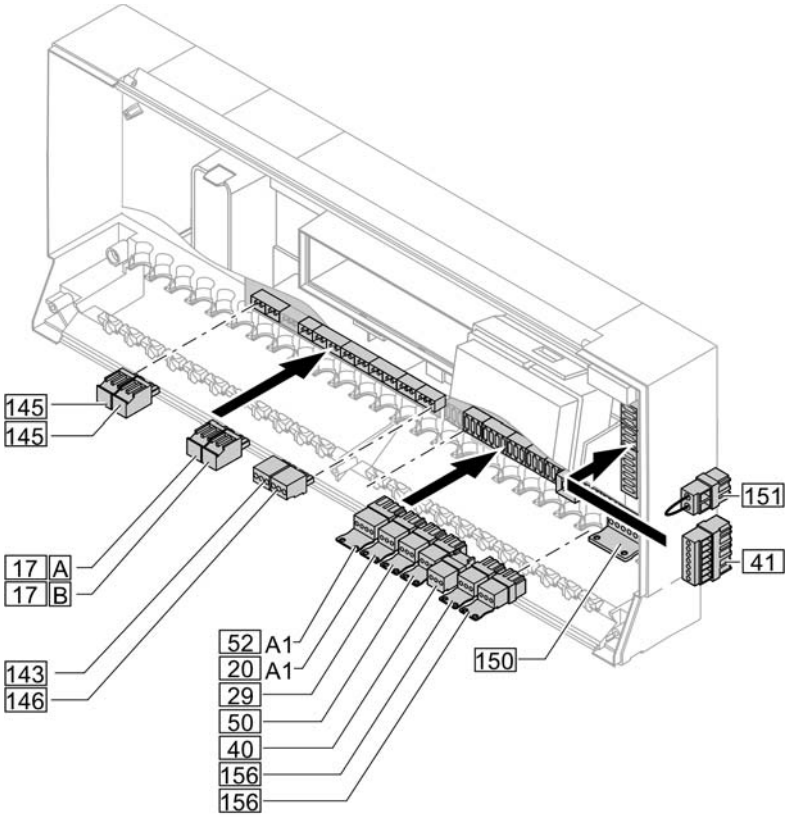
	Group	Function
01:2	2 “Boiler”	Multi boiler system with cascade control via LON
	Boiler number at the Vitotronic:	
07:2	2 “Boiler”	Boiler 2
07:3	2 “Boiler”	Boiler 3
07:4	2 “Boiler”	Boiler 4
	LON participant number at the Vitotronic:	
77:2	1 “General”	Vitotronic 300-K with two Vitotronic 300, GW5B
77:3	1 “General”	Boiler 3
77:4	1 “General”	Boiler 4

Code required at the Vitotronic 300-K

	Group	Function
00:3, 00:4, 00:7, 00:8		System scheme without system circuit (heating circuit A1)
35:1	“Cascade”	Vitotronic 300-K with one Vitotronic 300, GW5B
35:2	“Cascade”	Vitotronic 300-K with two Vitotronic 300, GW5B
35:3	“Cascade”	Vitotronic 300-K with three Vitotronic 300, GW5B
35:4	“Cascade”	Vitotronic 300-K with four Vitotronic 300, GW5B

Overview of Electrical Connections

Note: When connecting plugs 143 and 146, bundle the individual cores of the cables close to the terminals. This prevents the cores from shifting into the neighboring voltage area.



Main PCB low voltage

17A Return temperature sensor T1 (optional accessory, not used)
17B Return temperature sensor T2 (optional accessory, not used)

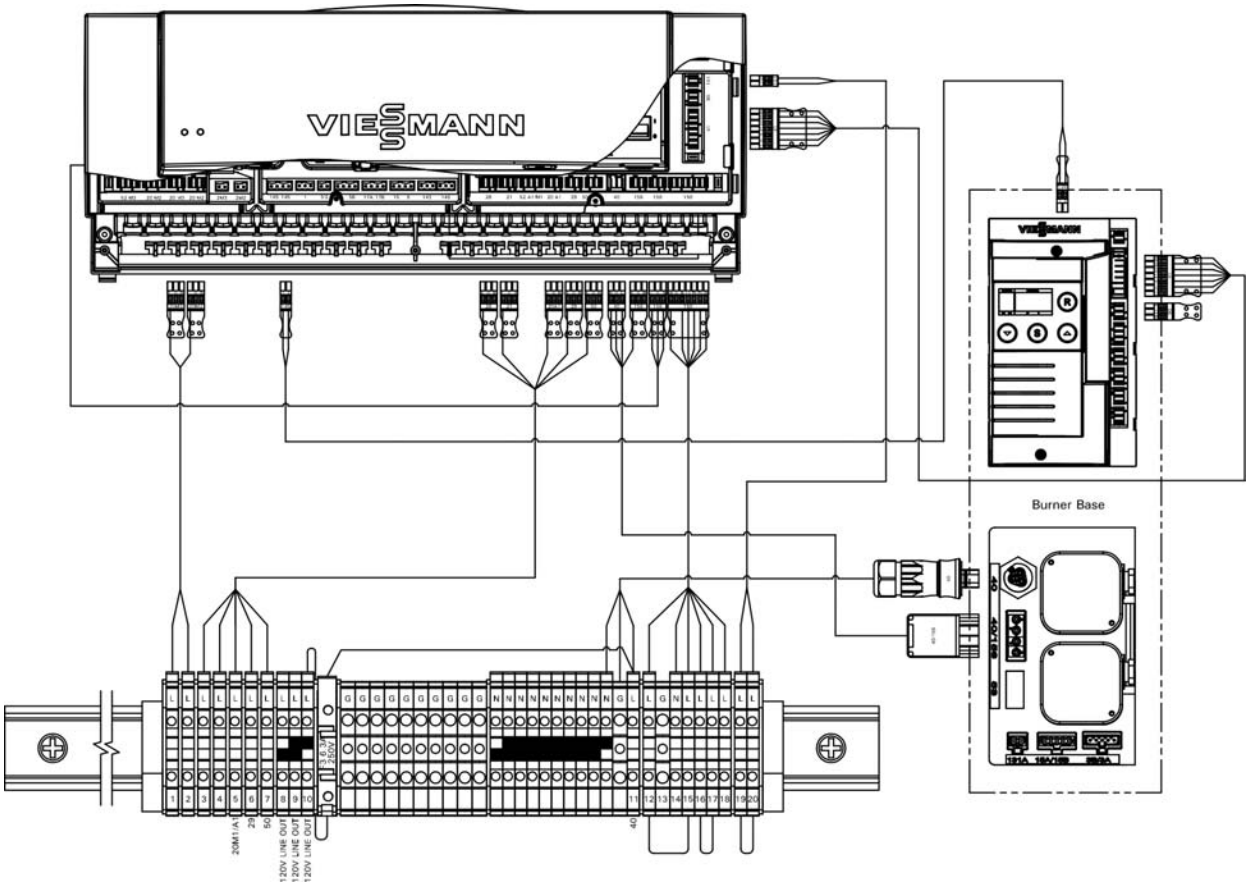
143 External hook-up
145 KM BUS participant (accessory)
146 External hook-up

Main PCB 120V~

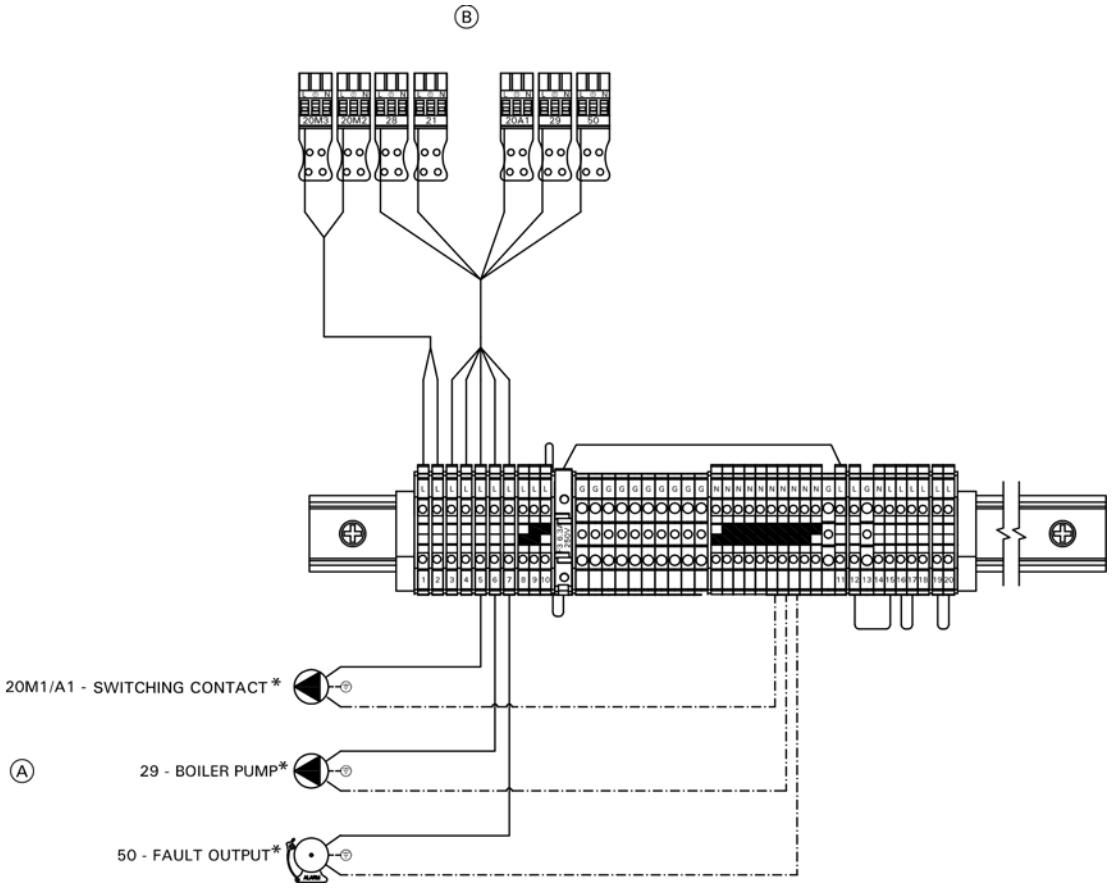
20A1 Switching output pump
29 Boiler circuit pump
40 Power supply
41 Burner (call for heat)
50 Central fault message
52A1 Isolation valve
150 External connections, e.g. supplementary safety equipment
151 Safety chain, floating
156 Power supply connection for accessories

Prior to making any connections ensure that the control and junction box have been installed as per the boiler Installation Instructions.

Overview of Electrical Connections *(continued)*



120V External Connection Overview



Legend

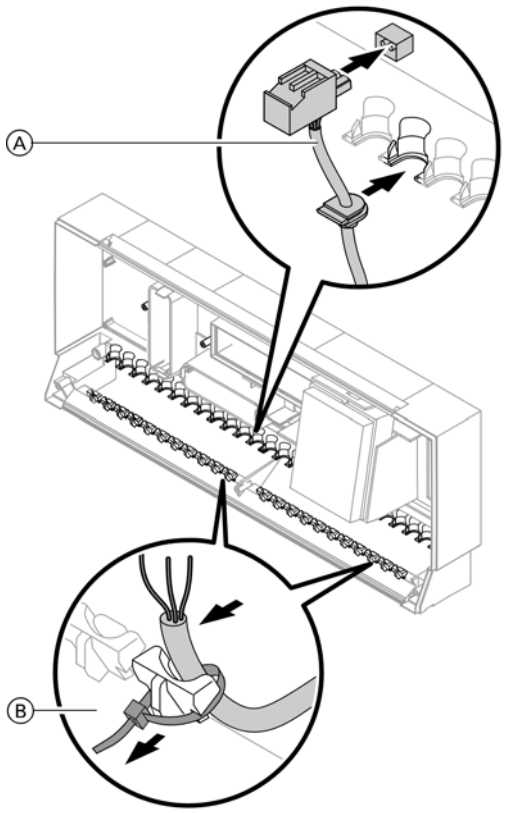
Ⓐ Pumps
Ⓑ To the control unit

Rated current: 2A ~
* Maximum output 6FLA shared between all 120V outputs.

Pumps 120V
Available pump connections

20	M1/A1	Switching contact
29		Boiler pump

Inserting Cables and Applying Strain Relief

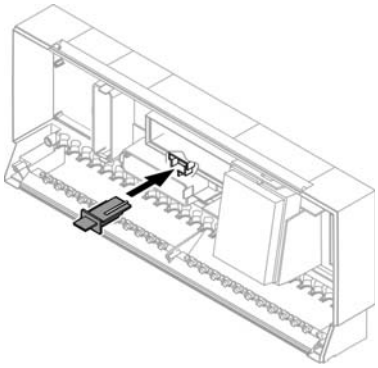


- Control unit fitted on the boiler:
  Route cables from below through the front panel of the boiler into the wiring chamber of the control unit.
- Control unit fitted to the side of the boiler:
  Route cables from below out of the cable channel into the control unit.

Legend

Ⓐ Cables with moulded strain relief
Ⓑ On-site cables; strip up to 4 in. (100 mm) insulation

Inserting the Boiler Coding Card

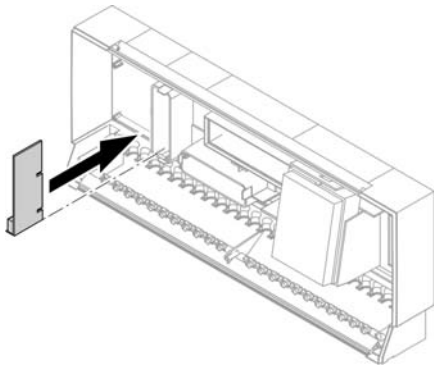


Only use the boiler coding card supplied with the boiler (see table in chapter “Components”).

Insert the boiler coding card into slot “X7”, through the recess in the cover.

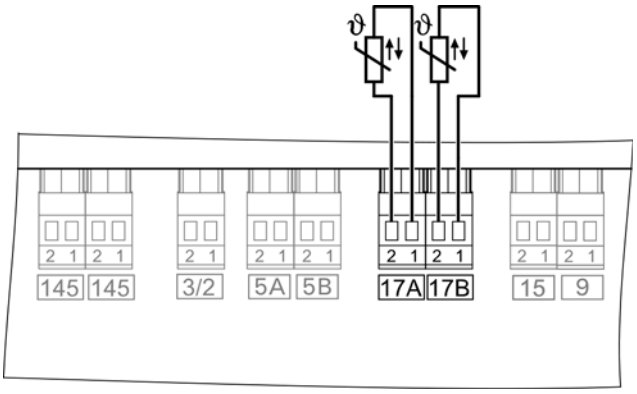
Boiler	Coding card	Part no.
Vitocrossal 200, CM2	1042	7841113

Inserting the LON Communication Module



Making the LON connection, see page 37.

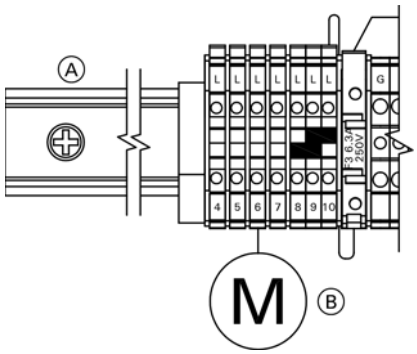
Connecting Sensors



Legend

Main PCB low voltage
17A Return temperature sensor T1 (optional accessory)
17B Return temperature sensor T2 (optional accessory)

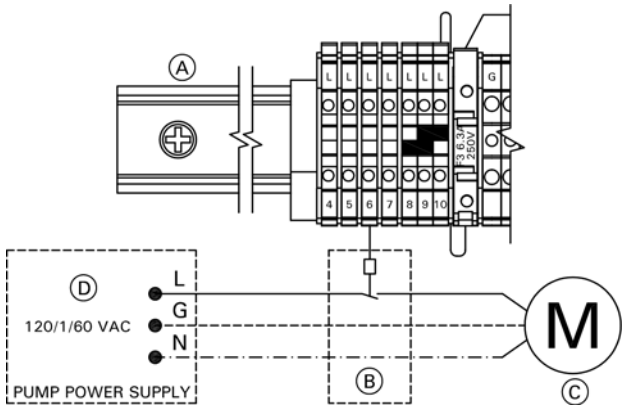
120V External Connection



120V pumps with an amperage draw of < 2FLA

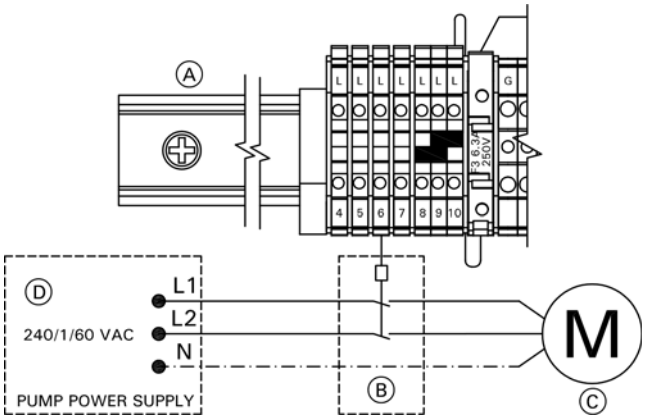
Ⓐ Din rail
Ⓑ Pump

120V External Connection *(continued)*



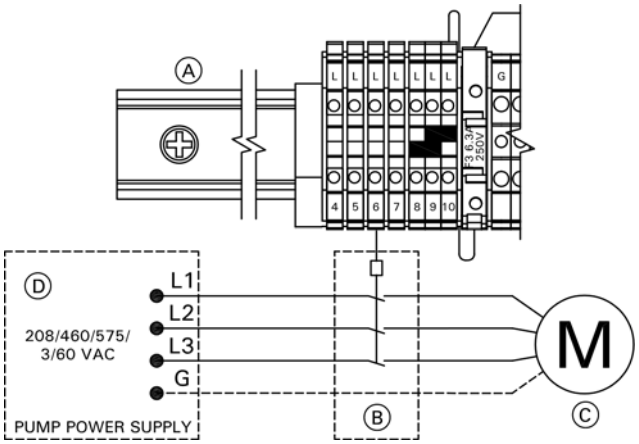
120V pumps with an amperage draw of >2FLA

Contactor specification 120VAC 1A
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection



240V pumps

Contactor specification 120VAC 1A
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection

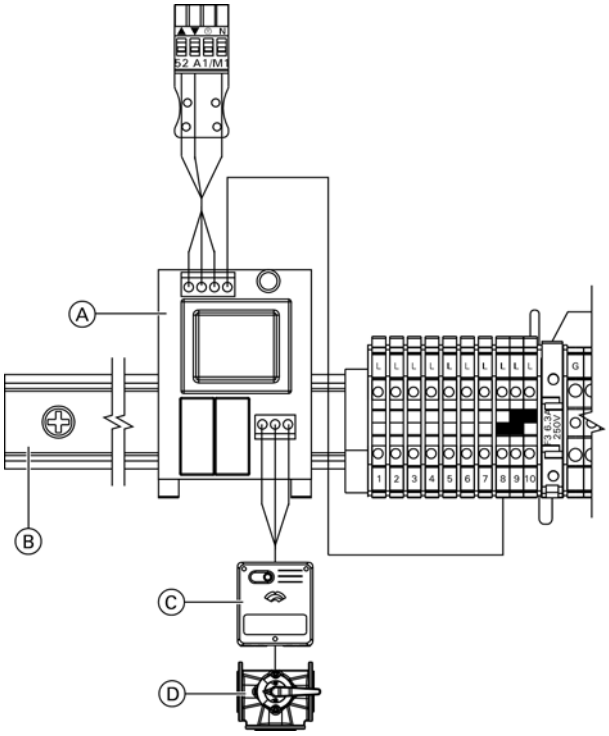


208/460/575V 3 phase pumps

Contactor specification 120VAC 1A
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection

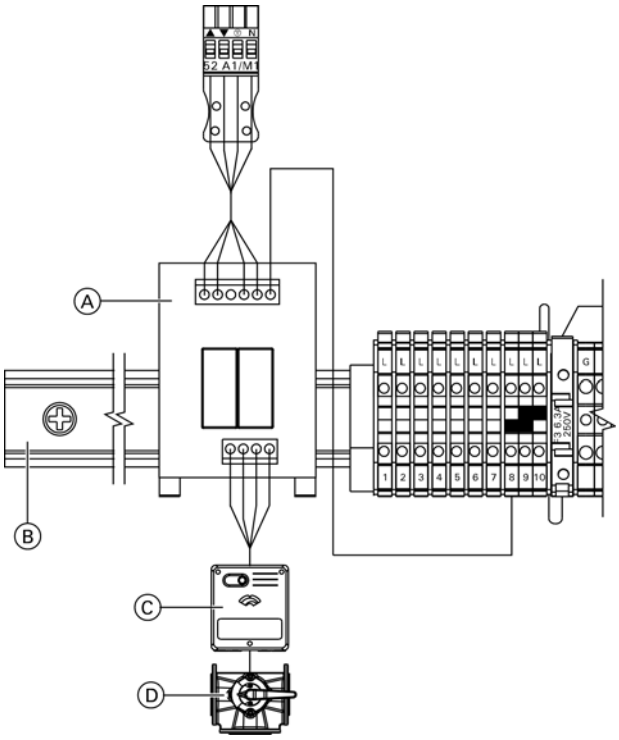
5693 973 - 05

Connecting Actuators



Legend

Ⓐ 24V Mixing Valve Adaptor
Ⓑ DIN Rail (in junction box)
Ⓒ 24V Valve Actuator
Ⓓ Valve



Legend

Ⓐ 120V Mixing Valve Adaptor
Ⓑ DIN Rail (in connection enclosure)
Ⓒ 120V Valve Actuator
Ⓓ Valve

120V Valve Adaptor

Rated voltage:	120VAC
Rated current:	max. 0.1 FLA

24V Valve Adaptor

Rated voltage:	24VAC
Rated current:	max. 0.15 FLA

Operating time: 5 to 199 sec. selected via coding address “40”.

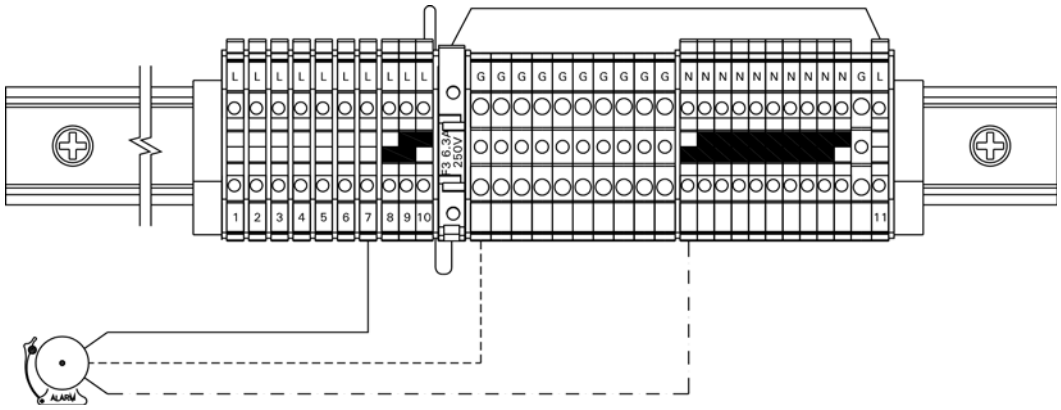
Available connections

52 A1 Motor for 3-way mixing valve, primary store system
52 M2 For heating circuit 2
52 M3 For heating circuit 3

Rated voltage:	120V~
Rated current Max.:	0.1A~
Motor runtime for 3-way mixing valve:	10 to 255 sec, adjustable via coding addresses “6A” in the”DHW”group, “C3” in the HC2 group and “C3” in the HC3 group.

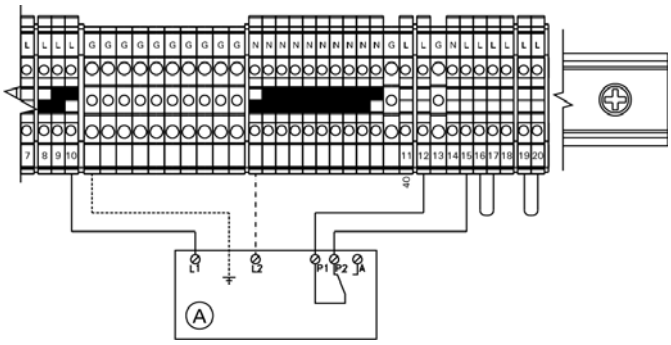
1. Disconnect power to control.
2. Install 120V or 24V valve adaptor on DIN rail inside connection enclosure.
3. Insert the plug 52 into socket 52 on the Vitotronic control.
4. Fasten cable with tie.
5. Connect black wire of the adaptor to terminals 8,9 or 10 on the Din rail.
6. Connect valve actuator wires to the adaptor terminals

Connecting the Central Fault Message Facility



Rated voltage	120V ~
Rated current	max. 2A ~

Connection of Low Water Cut-off Device



1. Remove jumper between terminals 12 and 15.
2. Make connection as shown in diagram.

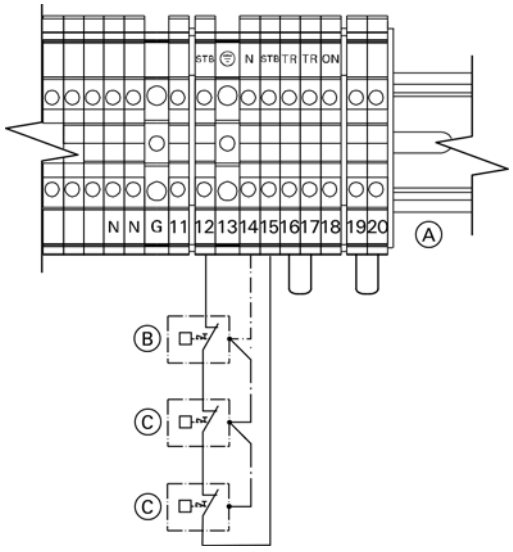
CAUTION

The diagram shown is only a simplified conceptual drawing of a typical low water cut off (LWCO) device. Refer to the manual specific to the device for interconnection details.

156 Power supply for accessories.
150 Connection for external equipment.
Ⓐ Low water cut-off (typical)

5693 973 - 05

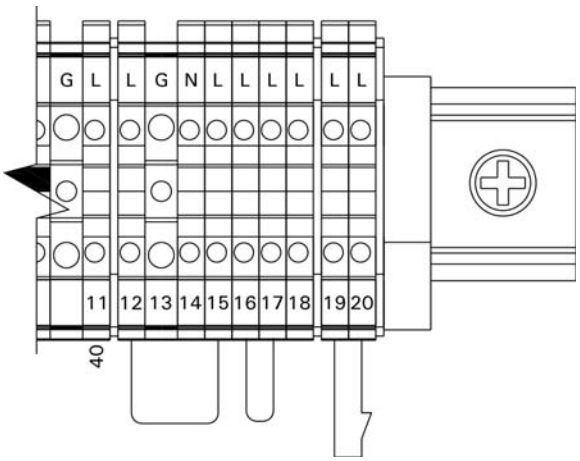
Connections to Safety Equipment



1. Connect the external safety equipment in series.

Legend
Ⓐ DIN rail
Ⓑ Low water cutoff
Ⓒ Other safety controls

Connections to Terminal 151



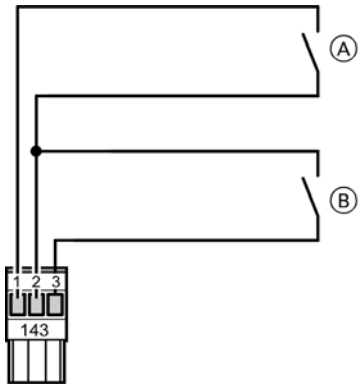
External shut-off

1. Remove jumper between terminals 19 and 20.
2. Connect dry contact. Controlled switch-off takes place when the contact is opened.

⚠ WARNING

The terminals should be used for safety switch-off purposes only (e.g. through a high limit thermostat). During switch-off, there is no frost protection of the heating system and the boiler is not kept at the minimum boiler water temperature.

Blocking Boiler Externally/Adding to the Boiler Sequence



Legend

Ⓐ Blocking boiler externally (dry contact)
Ⓑ Start boiler externally as the last one in the boiler sequence (dry contact)

Connection at plug 143.

Note: 'Live' contacts lead to short circuits or phase failure. The external connection must be floating.

Contact Ⓐ:

- Contact closed:
  The boiler is removed from the boiler sequence.
  The isolation valve or the 3- way mixing valve are closed for constant return temperature control.
  Shunt pump or boiler circuit pump are switched off.
  The heat demand has to be met by the other boilers.

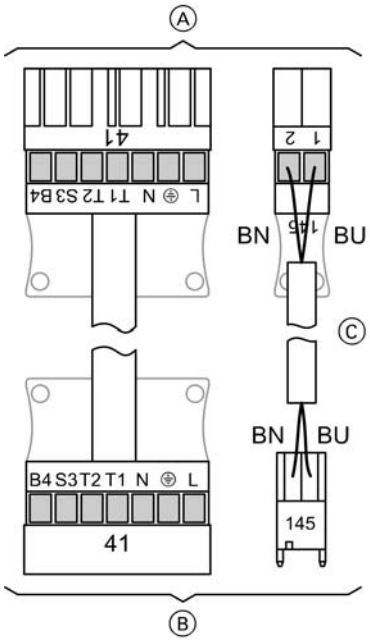
Note: If all boilers are blocked or there is no other boiler available for duty, there will be no frost protection for the heating system.

- Contact open:
  The boiler is integrated into the current boiler sequence.

Contact Ⓑ:

- Contact closed:
  The heat demand of the heating system is met by the other boilers. This boiler is started if the output of these boilers is insufficient.
- Contact open:
  The boiler is integrated into the current boiler sequence.

Connecting the Burner



Legend
Ⓐ To the Vitotronic control
Ⓑ To the burner (burner control unit)
Ⓒ KM BUS cable

The burner cables are included in the standard boiler delivery.

Max. power consumption 3A.

Terminal codes
L Burner control power supply
⏚ Ground conductor to burner
N Neutral conductor to burner
T1 120V~ from boiler control unit
T2 Base load demand
S3 Connection for burner fault
B4 Connection for hours run meter

Preparing Boilers for Cascade Mode

IMPORTANT

The following procedure must be done to configure each boiler for constant temperature control (cascade control) mode.

1. Turn on the boiler and set the language then press 'OK'.
2. Set the time and date and press 'OK'.

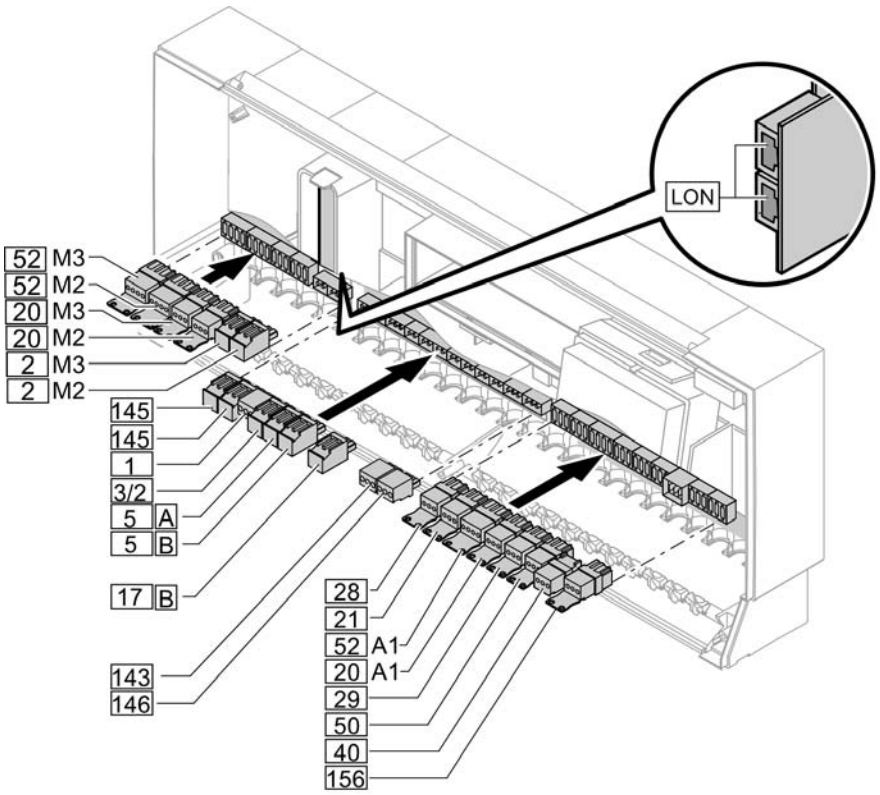
Refer to the boiler Installation Instructions.

3. Press and hold OK and ☰ until service menu comes up.
4. Scroll using ▲/▼ to the service functions, press OK.
5. Scroll using ▲/▼ to the multi-boiler system.
6. Press OK.
7. Scroll using ▲/▼ to "Yes".
8. Press OK.
   Note: The boiler will restart in cascade mode.
9. Set the language and press 'OK'.

Refer to the boiler Installation Instructions.

Overview of Electrical Connections

Note: When connecting plugs [143], [146], [21], [28], [2] M2/M3 and [20] M2/M3, bundle the individual wires of the cables close to the terminals. This ensures that, should there be an error, for example when detaching a wire, the wires cannot drift into the adjacent voltage area.



Extension for heating circuits 2 and 3 with mixing valve

[2] M2/M3 Supply temperature sensor
[20] M2/M3 Heating circuit pump
[52] M2/M3 Mixing valve motor

Main PCB low voltage

[1] Outside temperature sensor
[3]/[2] Supply temperature sensor, common heating flow
[5] A DHW tank temperature sensor
[5] B DHW tank temperature sensor 2 for primary store system (optional accessory, not used)
[17] B Return temperature sensor T2 (optional accessory, not used)
or
Temperature sensor primary store system (optional accessory, not used)
[143] External hook-up
[145] KM BUS participant (optional accessory, not used)

[146] External hook-up
LON LON BUS, connecting cable for data exchange with the Vitotronic 300, GW5B, 200-H, Vitocom and Vitogate

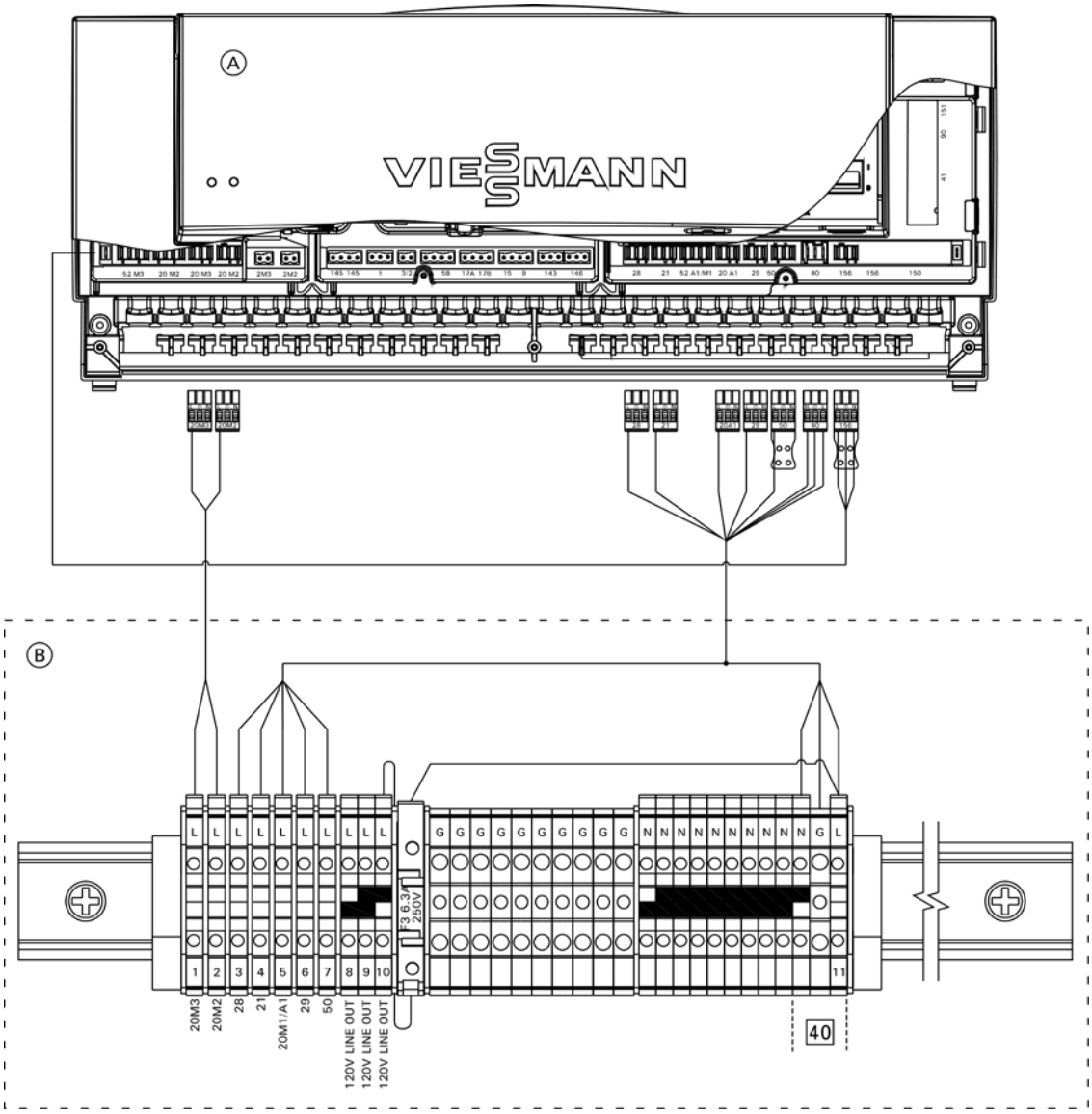
Main PCB 120V~

[20] A1 Heating circuit pump
or
Primary pump, primary store system
[21] Circulation pump for DHW tank heating (optional accessory, not used)

[28] DHW recirculation pump (on site)
[29] Shunt pump or distribution pump (on site)
[40] Power supply
[50] Central fault message
[52] A1 Motor for 3-way mixing valve, primary store system
or
Motor for 3-way mixing valve, return temperature control
[156] Power supply connection for mixing valve module circuit M2 and M3

Note: When inserting cables and applying strain relief see page 29.

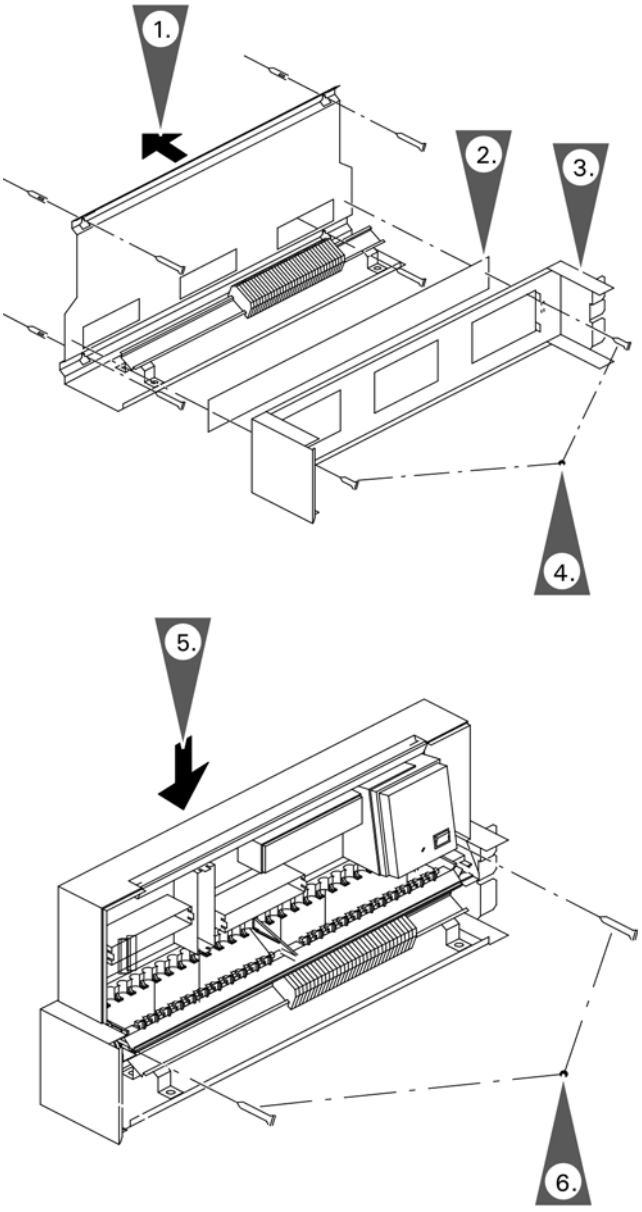
Overview of Electrical Connections, Vitotronic 300-K *(continued)*



Legend

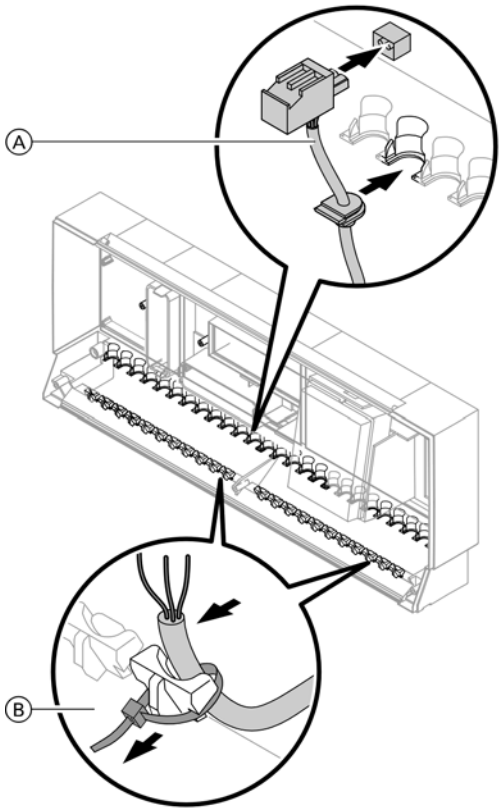
Ⓐ Vitotronic 300-K
Ⓑ Din rail

Mounting the Control Unit



1. Fasten metal backplate onto mounting surface with four fasteners.
2. Position midplate between backplate and connection enclosure.
3. Install midplate and connection enclosure onto backplate.
4. Fasten connection enclosure and midplate onto backplate with two fasteners.
5. Install control rear section onto connection enclosure housing. Hook control onto backplate tabs and pivot downwards.
6. Fasten control rear section onto connection enclosure with two fasteners.

Inserting Cables/Leads and Applying Strain Relief

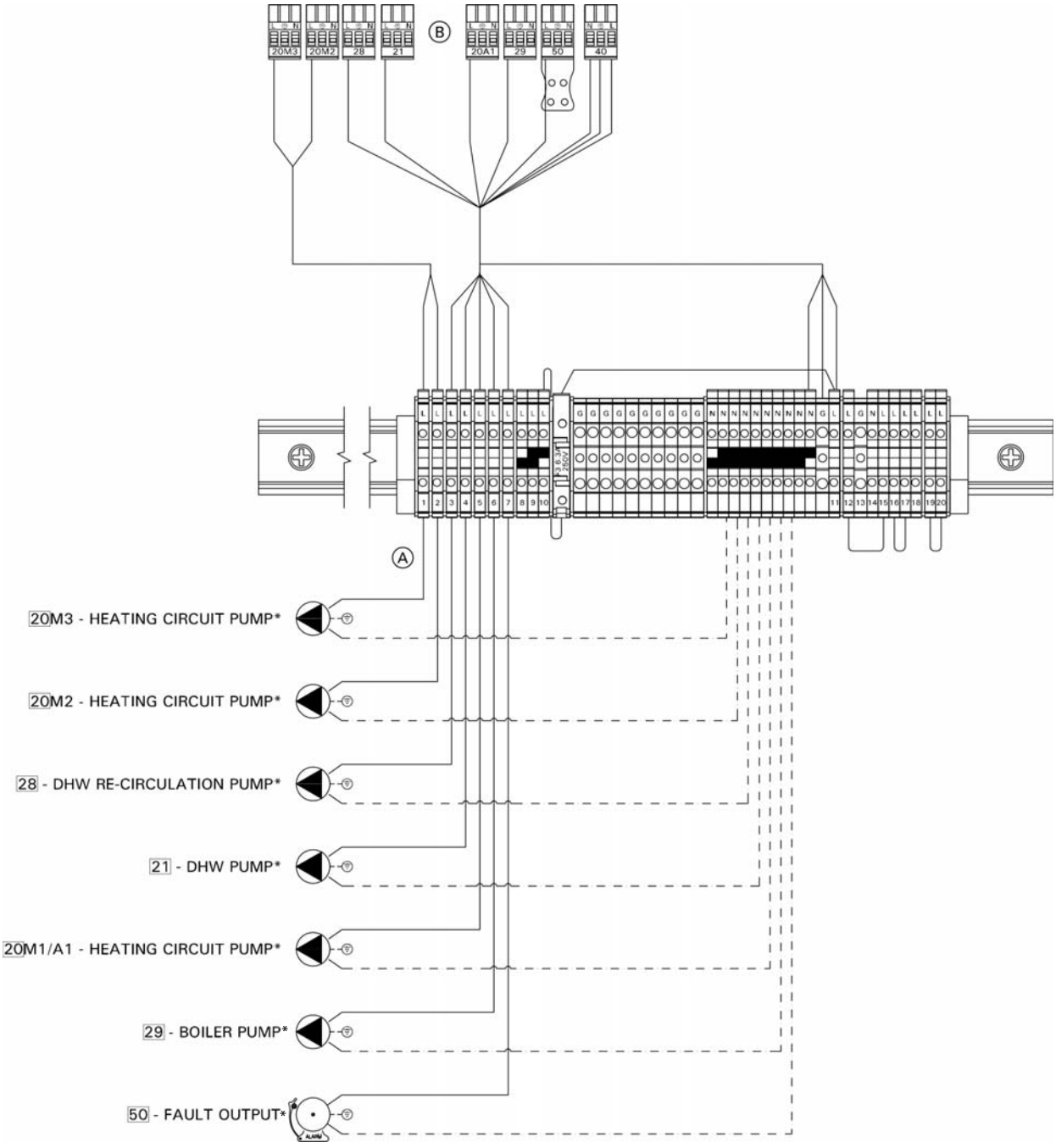


Run the cables from the connection enclosure into the control unit.
Apply strain relief to cables.

Cables with moulded strain relief clamp:
Connect cable and strain relief clamp.
OR
Fasten cable to the cable lead with cable tie.

Legend
Ⓐ Cables with moulded strain relief
Ⓑ On-site cables; strip up to 4 in. (100 mm) insulation.

Connecting Pumps



Legend

Ⓐ 120V outputs
Ⓑ To the control unit

Rated current: 2 A~

* Maximum pump output 6FLA shared between all 120V outputs.

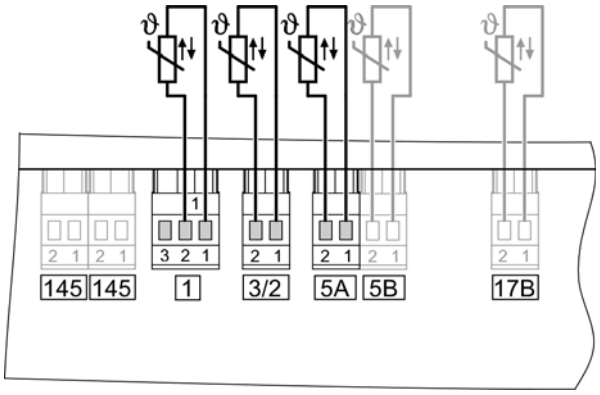
Pumps 120V

Available pump connections

20	M1/A1	High temperature circuit pump/ primary store pump
20	M2	Heating circuit 2 pump
20	M3	Heating circuit 3 pump
21		DHW pump
28		DHW recirculation pump
29		System pump

5693 973 - 05

Connecting Sensors



Legend

1	Outside temperature sensor
3/2	Common supply temperature sensor
5A	DHW tank temperature sensor 1
5B	DHW tank temperature sensor 2 for primary store system (optional accessory, not used)
17B	Return temperature sensor T2 or Temperature sensor primary store system (optional accessory, not used)

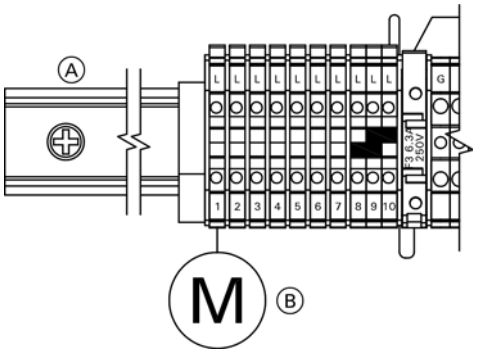
Installation point for outside temperature sensor

- North or north-western wall, 6.6 to 8.2 ft. (2 to 2.5 m) above ground level; in multi storey buildings, in the upper half of the second floor
- Not above windows, doors or ventilation outlets
- Not immediately below balconies or gutters
- Never render over

Outside temperature sensor connection

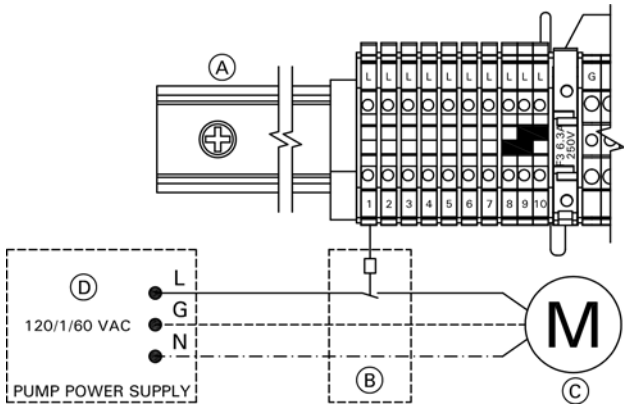
Two wire communication cable 18 AWG

120V External Connection



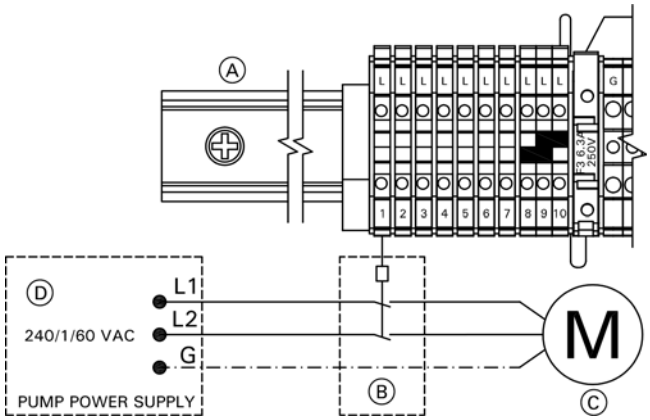
120V pumps with an amperage draw of < 2FLA

Ⓐ Din rail
Ⓑ Pump



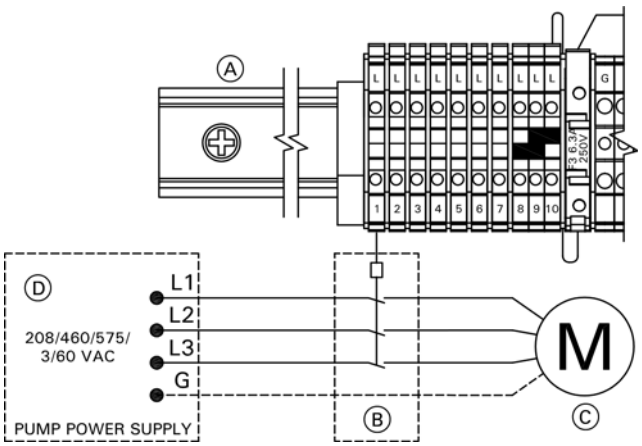
120V pumps with an amperage draw of > 2FLA

Contactor specification 120VAC 1A
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection



240V pumps

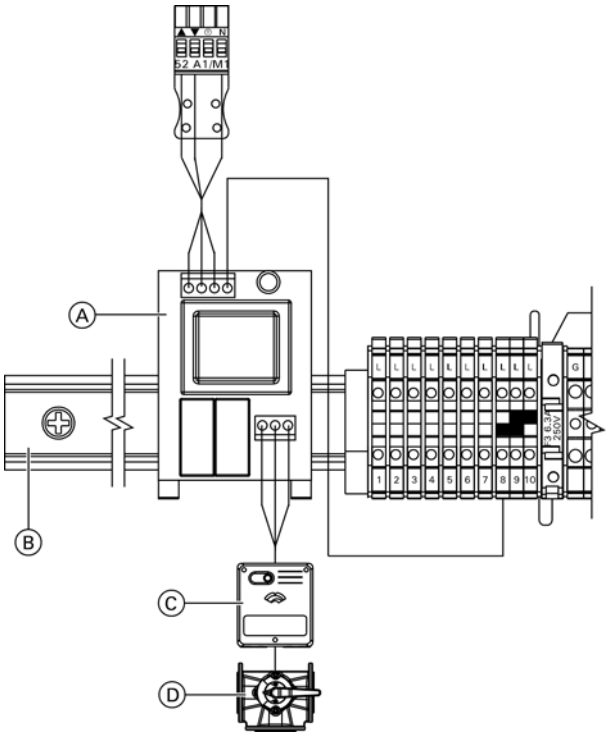
Contactor specification 120VAC 1A
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection



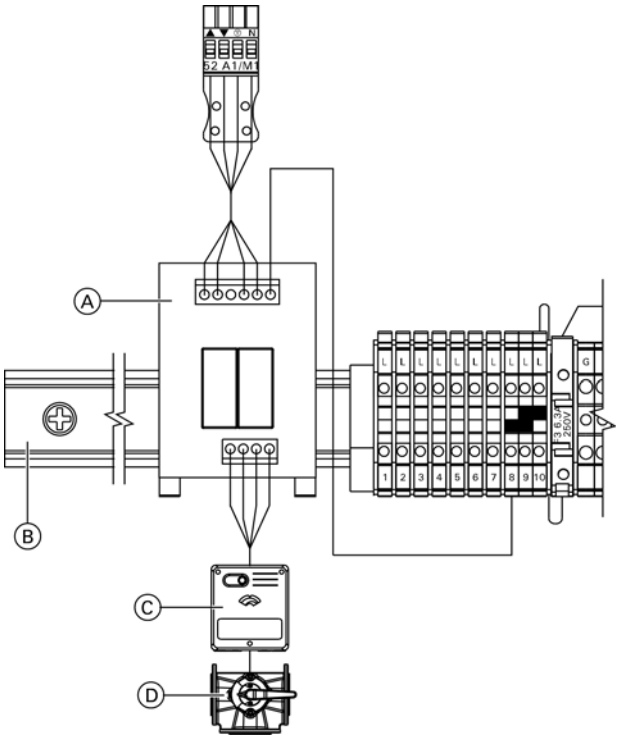
208/460/575V 3 phase pumps

Contactor specification 120VAC 1A
Ⓐ Din rail
Ⓑ Contactor/relay (field supplied)
Ⓒ Pump
Ⓓ Power supply w/disconnect and protection

Connecting Actuators



Legend
Ⓐ 24V Mixing Valve Adaptor
Ⓑ DIN Rail (in junction box)
Ⓒ 24V Valve Actuator
Ⓓ Valve



Legend
Ⓐ 120V Mixing Valve Adaptor
Ⓑ DIN Rail (in junction box)
Ⓒ 24V Valve Actuator
Ⓓ Valve

120V Valve Adaptor

Rated voltage:	120 VAC
Rated current:	max. 0.1 FLA
Recommended connection wire size:	AWG 14

24V Valve Adaptor

Rated voltage:	24 VAC
Rated current:	max. 0.15 FLA
Recommended connection wire size:	AWG 14

Operating time: 5 to 199 sec. selected via coding address “40”.

Available connections

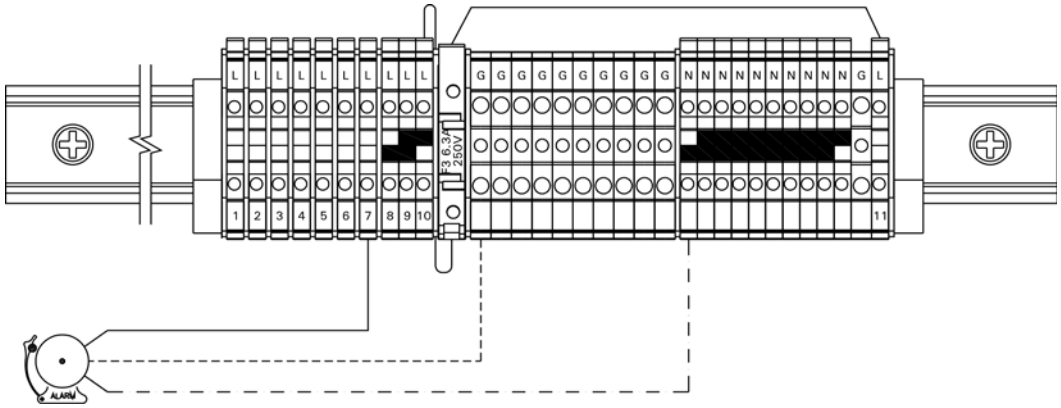
52 A1 Motor for 3-way mixing valve, primary store system
52 M2 For heating circuit 2
52 M3 For heating circuit 3

Rated voltage:	120V~
Rated current Max.:	0.1A~
Motor runtime for 3-way mixing valve:	10 to 255 sec, adjustable via coding addresses “6A” in the”DHW”group, “C3” in the HC2 group and “C3” in the HC3 group.

1. Disconnect power to control.
2. Install 120V or 24V valve adaptor on DIN rail inside connection enclosure.
3. Insert the plug 52 into socket 52 on the control.
4. Fasten cable with tie.
5. Connect black wire of the adaptor to terminals 8,9 or 10 on the Din rail.
6. Connect valve actuator wires to the adaptor terminals

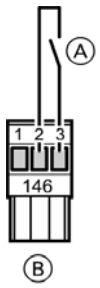
Refer to the mixing valve adaptor Installation Instructions for additional information.

Connecting the Central Fault Message Facility



Rated voltage	120V~
Rated current	max. 2 A~

External Demand Via Switching Contact



Legend

Ⓐ Floating contact
Ⓑ Plug 146 of the control unit

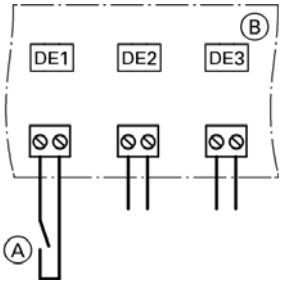
Connection

Note: 'Live' contacts lead to short circuits or phase failure. The external connection must be floating.

Connection options:

- Plug 146
- Extension EA1 (accessory, see page 113)

With the contact closed, the boiler burners are started subject to load. They heat to the set supply temperature selected in coding address "9B" in the "General" group. The temperature is limited by this set value and the electronic maximum supply temperature limit (coding address "37" in the "Cascade" group).



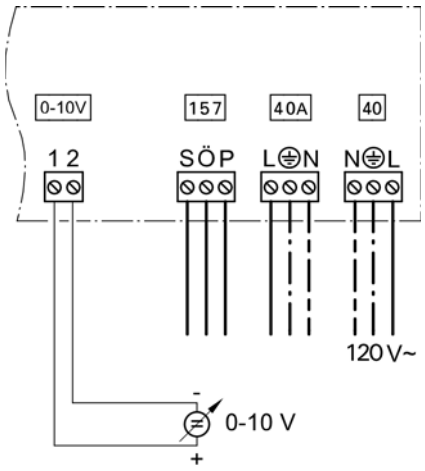
Legend

Ⓐ Floating contact
Ⓑ Extension EA1

Codes

Plug 143	Extension EA1
No code required.	Set "5D", "5E" or "5F" in the "General" group to 2.

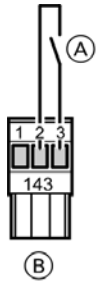
External Demand via 0–10V Input



Connection at input 0 – 10V at extension EA1 (see page 113).

0 - 1V ≙ no default set supply temperature
1V ≙ set value 50° F (10° C)
10V ≙ set value 212° F (100° C)
Observe coding address “1E” in the “General” group.

External Blocking via Switching Contact



Legend
Ⓐ Floating contact
Ⓑ Plug 143 of the control unit

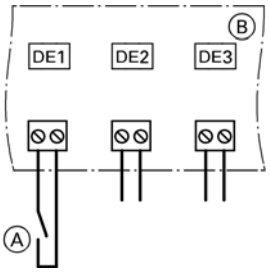
Connection options:
- Plug 143
- Extension EA1 (accessory, see page 113)

Connection

Note: ‘Live’ contacts lead to short circuits or phase failure. The external connection must be floating.

With the contact closed, the burners of all boilers will be subject to a control shutdown.
Any connected shunt or distribution pump is stopped.
Shut-off devices are closed.

Note: The heating system has no frost protection during blocking. The boilers are not held at the lower boiler water temperature.

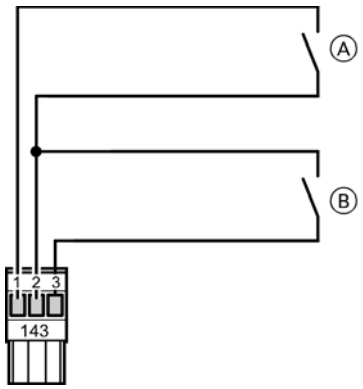


Legend
Ⓐ Floating contact
Ⓑ Extension EA1

Codes

Plug 143	Extension EA1
Set coding address “99” in the “General” group, which the input should influence.	Set “5D”, “5E” or “5F” in the “General” group to 3 or 4.

External “Mixing Valve Closed”/”Mixing Valve Open”



Legend

Ⓐ External “Mixing valve open” (floating contact)
Ⓑ External “Mixing valve closed” (floating contact)

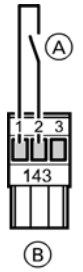
Connection at plug 143.

Note: ‘Live’ contacts lead to short circuits or phase failure. The external connection must be floating.

Codes

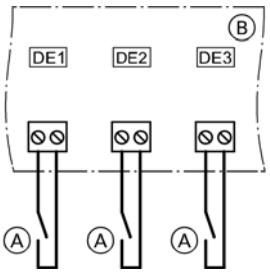
External “Mixing valve open”	External “Mixing valve closed”
Via coding address “9A” in the “General” group, this function is assigned to the heating circuits.	Via coding address “99” in the “General” group, this function is assigned to the heating circuits.

External Heating Program Changeover



Legend

Ⓐ Floating contact
Ⓑ Plug 143 of the control unit



Legend

Ⓐ Floating contact
Ⓑ Extension EA1

Connection

Note: ‘Live’ contacts lead to short circuits or phase failure. The external connection must be floating.

Connection options:

- Plug 143
- Extension EA1 (accessory, see page 112)

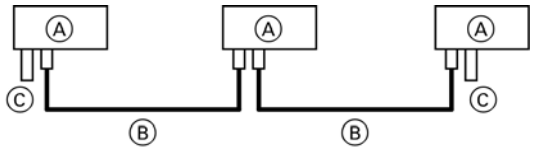
Codes

Plug 143	Extension EA1
This function is assigned to the heating circuits via coding address “91” in the “General” group.	Set “5D”, “5E” or “5F” in the “General” group to 1. This function can be assigned to the heating circuits via coding address “D8” in the “Heating circuit...” group.

Preselected heating program (Contact open)		Coding		Changed heating program (Contact closed)
⏻	Central heating OFF/ DHW OFF	D5:0 (factory set condition)	⇔	Permanent operation with reduced room temperature/DHW OFF
		D5:1	⇔	Constant operation with standard room temperature, DHW in accordance with coding address “64”
or	Central heating OFF/DHW ON			
or	Central heating ON/DHW ON			

Making the LON Connection

Connection with Viessmann LON cable

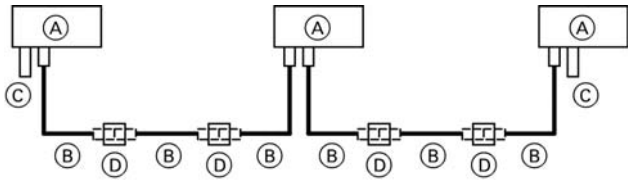


The line may be up to ≤ 23 ft. (7 m) long

Legend

Ⓐ Control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Ⓒ Terminator

Connection with Viessmann LON cable and coupling

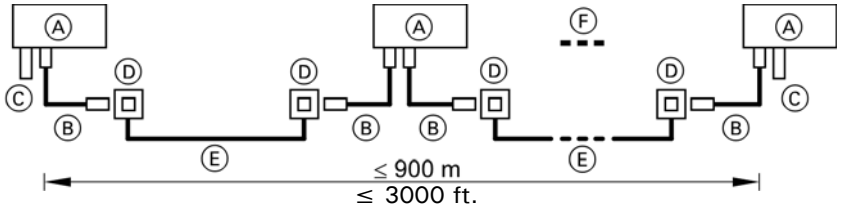


Installation spacing 23 to 69 ft. (7 to 21 m)

Legend

Ⓐ Control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Max. 3 cables between 2 appliances
Ⓒ Terminator
Ⓓ LON coupling

Connection with LON cable, on-site cable and LON junction box



The line may be up to ≤ 3000 ft. (900 m) (with LON junction boxes)

Legend

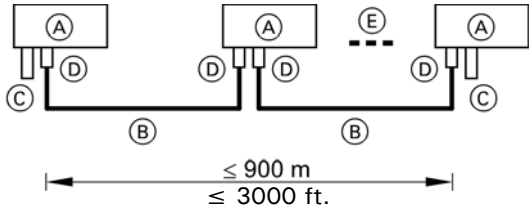
Ⓐ Control unit or Vitocom
Ⓑ LON cable, 23 ft. (7 m) long
Ⓒ Terminator
Ⓓ LON junction boxes
Ⓔ On-site cable
Ⓕ Up to 99 participants

The Viessmann LON system is designed for the "Line" BUS topology with a terminator at both ends (accessories). The transfer distances for LON are subject to the electrical properties of the respective cabling. For this reason, only use the stated cable types. Use only one type of cable within the LON.

Observe the cabling requirements for the operation of the LON interface FTT 10-A (see www.echelon.com).

All Viessmann equipment is connected via RJ45 plugs. The Viessmann LON system always requires the cores "1" and "2" and the screen. The cores are interchangeable. The installation is therefore safe from pole errors.

Connection with on-site cable and LON plug

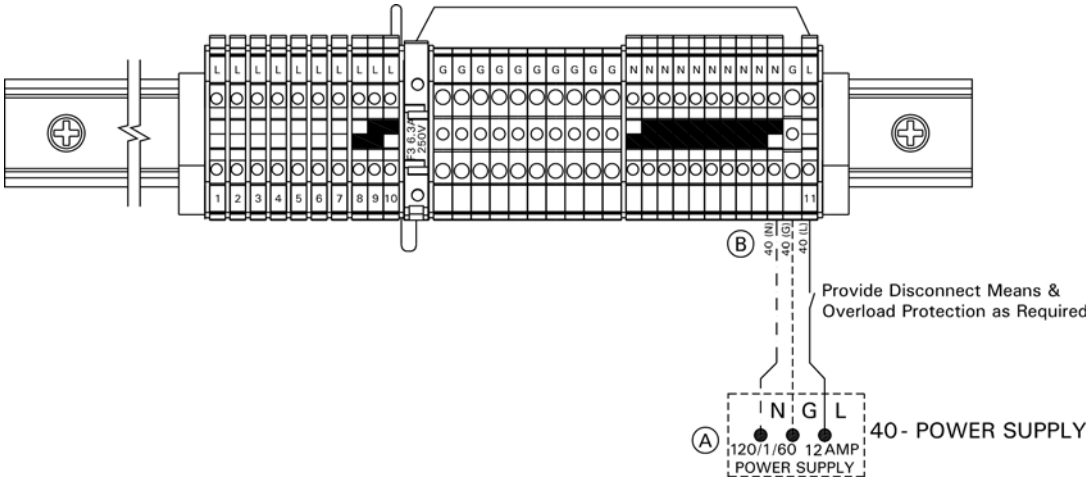


The line may be up to ≤ 3000 ft. (900 m) (with LON plug)

Legend

Ⓐ Control unit or Vitocom
Ⓑ On-site cable
Ⓒ Terminator
Ⓓ LON plug
Ⓔ Up to 99 participants

Power Supply


L L L L L L L L L
G G G G G G G G G
N N N N N N N N N
G L
1 2 3 4 5 6 7 8 9 10
11
Ⓑ
40 (N)
40 (G)
40 (L)
Provide Disconnect Means &
Overload Protection as Required
N G L
Ⓐ
120/1/60 12 AMP
POWER SUPPLY
40 - POWER SUPPLY

Legend
L: Line
N: Neutral
G: Ground

Ⓐ Power supply 120VAC, 1PH, 60Hz, provide disconnect means and overcurrent protection as per local codes

Ⓑ Terminals N, G and 11 (in junction box)

Ⓒ Junction box

1. Ensure that the main power supply to the control contains overcurrent protection with a minimum rating of 6A and 2-pole disconnect.

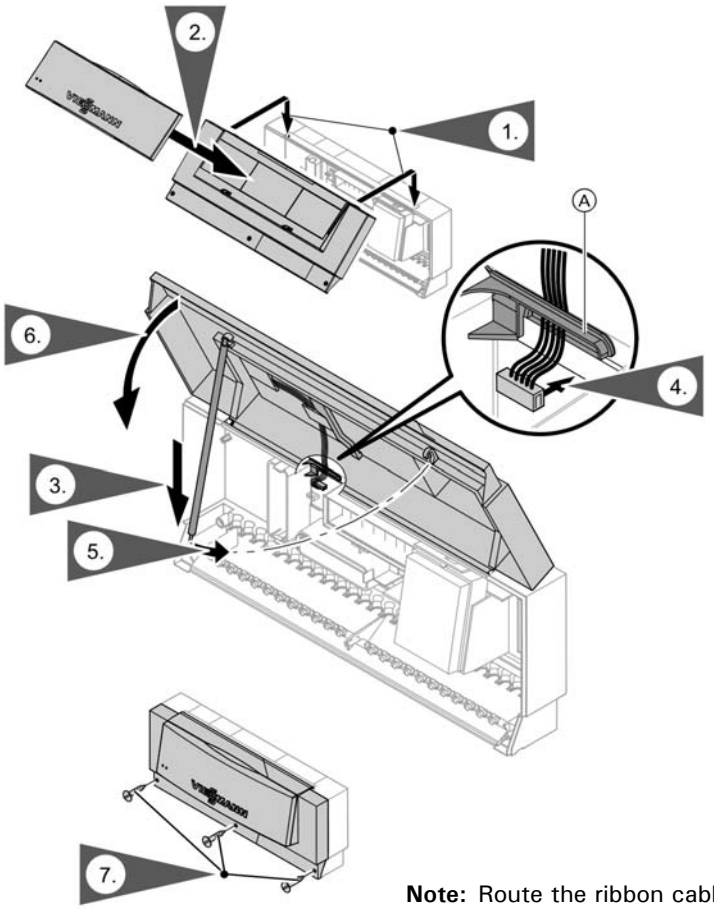
⚠ WARNING

The control must be grounded.
Ensure that "L", "N" and "G" are not interchanged.

2. Connect power supply wire to the connection 40 terminals 11, N and G on the DIN rail inside the junction box.

5693 973 - 05

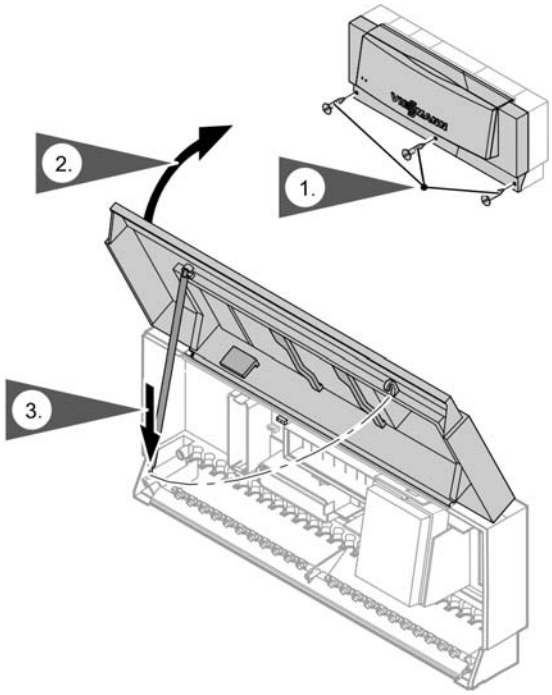
Fitting the Control Unit Front



Legend
Ⓐ Cable retaining tab

Note: Route the ribbon cable through retainer Ⓐ.

Opening the Control Unit



Testing the High Limit Safety Cut-out

The minimum circulation volume should be 10% of the circulation volume at rated load.
Reduce the heat consumption as far as possible.

1. Hold down the “TEST” key until the burner has shut down: Thermostat is bridged. The high limit safety cut-out must shut down the burner at the latest when the safety temperature has been reached.
2. Release the “TEST” key.
3. Wait until the boiler water temperature has dropped approx. 15 to 20 K below the selected safety temperature.
4. Reset the high limit safety cut-out by pressing reset button.

Operating instructions

Changing the Language on the Vitotronic 300-K

At the commissioning stage, the display is in German (default setting).

Extended menu:

1. ☰
2. “Einstellungen” (Settings)
3. “Sprache” (Language) Deutsch DE (German)
4. Set the required language with ▲/▼

Setting the Date and Time on the Vitotronic 300-K

During commissioning, or after prolonged time out of use, the time and date need to be reset.

Extended menu:

1. ☰
2. “Settings”
3. “Time / Date”
4. Set current time and date.

Matching the Coding Addresses to the System Version

Vitotronic 300, GW5B (set codes at every Vitotronic 300, GW5B - boiler control)
Switching mode from standalone/weather compensated control to constant temperature control (see page 25).

Vitotronic 300, GW5B

Check all addresses in Code 1 and adjust if required.
Check the following coding addresses and adjust accordingly in Code 2:

	Group	Function
"4C"	1 "General"	Function plug 20
"4D"	1 "General"	Function plug 29
"4E"	1 "General"	Function plug 52
"98"	1 "General"	Viessmann system number
"9C"	1 "General"	Monitoring LON participants

Vitotronic 300-K

Check all addresses in Code 1 and adjust if required.
Check the following coding addresses and adjust accordingly in Code 2:

	Group	Function
"39"	"Cascade"	Permanent lead boiler
"3A"	"Cascade"	Permanent last boiler
"4C"	"General"	Function plug 20
"4D"	"General"	Function plug 29
"4E"	"General"	Function plug 52
"55"	"DHW"	DHW tank temperature control function
"7A"	"General"	Central control
"98"	"General"	Viessmann system number
"9C"	"General"	Monitoring LON participants

Selecting the Boiler Sequence at the Vitotronic 300-K

Subject to the set codes in the "Cascade" group and internal control calculations, the control unit offers various boiler sequences.

Coding addresses that influence the boiler sequence:

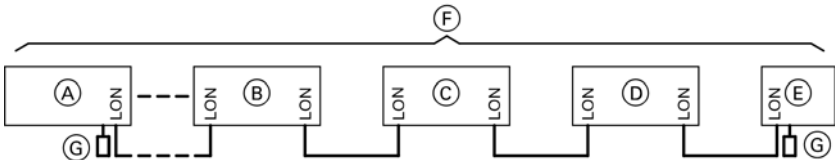
"38"	Changing the lead boiler and the boiler sequence
"39"	Permanent lead boiler
"3A"	Permanent last boiler
"41" to "44"	ECO thresholds

- Via the ECO threshold, every boiler can be blocked or enabled subject to the outside temperature.
- If the boiler is required to achieve the set supply temperature in the case of enabled boilers failing, the ECO threshold is disabled.
- At least the lead boiler remains active if all boilers in a system are blocked by the ECO threshold.

1. Press ☰.
2. "Boiler sequence"
3. Select the required boiler sequence and confirm with OK.

Connecting the Control Unit to the LON

Example of a multi boiler system



Legend

Ⓐ Vitotronic 300 GW5B
Ⓑ Vitotronic 300 GW5B
Ⓒ Vitotronic 300-K
Ⓓ Vitotronic 200-K
Ⓔ Vitocom
Ⓕ LON system
Ⓖ Terminator

- The LON communication module must be fitted into every Vitotronic 300, GW5B (see page 61).

Note: The communication module is integrated in the Vitotronic 300-K.

- Vitotronic 200-H:
  The LON communication module (accessory) must be fitted.

Installation and service instructions, Vitotronic 200-H

- Within one LON, the same participant number must not be allocated twice.
- Within one LON, the system number (coding address "98" in the "General" group) must always be the same.
- Only one Vitotronic may be programmed as fault manager.
- The data transfer via the LON system can take several minutes.

Connecting the Control Unit to the LON *(continued)*

Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Multi boiler system. Set code “01:2” in group 2 “Boiler”.	Multi boiler system. Set code “01:2” in group 2 “Boiler”.	--	--	--
Boiler number 1. Code “07:1” in group 2 “Boiler”.	Boiler number 2. Set code “07:2” in group 2 “Boiler”.	--	--	--
With LON communication module Code “76:1” in group 1 “General”; automatic recognition.	With LON communication module Code “76:1” in group 1 “General”; automatic recognition.	With LON communication module Code “76:1” in the “General” group; automatic recognition.	With LON communication module Code “76:1” in the “General” group; automatic recognition.	--
--	--	Number of connected boilers. Set codes “35:1” to “35:4” in the “Cascade”group.	--	--
Participant no. 1. Code “77:1” in group 1 “General”.	Participant no. 2. Set code “77:2” in group 1 “General”.	Participant no. 5. Set code “77:5” in the “General” group.	Participant no. 10. Set code “77:10” in the “General” group.	Participant no. 99.
Control unit is not fault manager. Code “79:0” in group 1 “General”.	Control unit is not fault manager. Code “79:0” in group 1 “General”.	Control unit is fault manager. Set code “79:1” in the “General” group.	Control unit is not fault manager. Set code “79:0” in the “General” group.	Device is fault manager.
--	--	Control unit transmits the time. Code “7B:1” in the “General” group.	The control unit receives the time. Set code “81:3” in the “General” group.	Device receives the time.
--	--	Control unit transmits outside temperature. Set code “97:2” in the “General” group.	Control unit receives the outside temperature. Set code “97:1” in the “General” group.	--
LON participant remote monitoring. Code “9C:20” in group 1 “General”.	LON participant remote monitoring. Code “9C:20” in group 1 “General”.	LON participant remote monitoring. Code “9C:20” in the “General” group.	LON participant remote monitoring. Code “9C:20” in the “General” group.	--

Connecting the Control Unit to the LON *(continued)*

Carrying out a LON participant check at the Vitotronic 300-K

Communication with the system devices connected to the fault manager is tested by means of a participant check. Preconditions:

- The control unit must be programmed as fault manager (code "79:1").
- The LON participant no. must be programmed in all control units (coding address "77").
  The LON participant list in the fault manager must be up to date.

Carrying out the participant check:

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Service functions"
3. "Participant check"
4. Select participant (e.g. participant 10).
   The participant check for the selected participant is initiated.
   - Successfully tested participants are designated with "OK".
   - Unsuccessfully tested participants are designated with "Not OK".

Note: To carry out a new participant check, create a new participant list with "Delete list?" (participant list is updated).

Note:
- Vitotronic 300, GW5B:
  During the participant check, the display for the relevant participant flashes for approx. 1 min.
- Vitotronic 200-H:
  During the participant check, the display for the relevant participant shows the participant no. and "Wink" for approx. 1 min.

Checking Actuators and Sensors at the Vitotronic 300 GW5B

Testing the relay

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Actuator test"

Before an actuator is selected, all actuators are off.

The following actuators (relay outputs) can be switched subject to system equipment level:

Display		Explanation
"All actuators"	Off	All actuators have been switched off.
"Burner modulation"	Open	Modulating burner.
"Burner modulation"	Neutral	Modulating burner.
"Burner modulation"	Close	Modulating burner.
"Output 20"	On	Output 20 active.
"Output 52"	Open	
"Output 52"	Neutral	
"Output 52"	Close	
"Output 29"	On	Output 29 active.
"Compiled fault message"	On	
"EA1 output 1"	On	Contact "P - S" on plug 157 of extension EA1 closed.
"AM1 output 1"	On	Output active.
"AM1 output 2"	On	Output active.

Note: During burner operation, the pumps connected to the control unit are started.

Checking sensors

Service menu:
1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Diagnosis"
3. Select group (see page 50).
4. Scan actual temperature of the relevant sensor.

Checking Actuators and Sensors at the Vitotronic 300-K

Carrying out a relay test

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Actuator test"

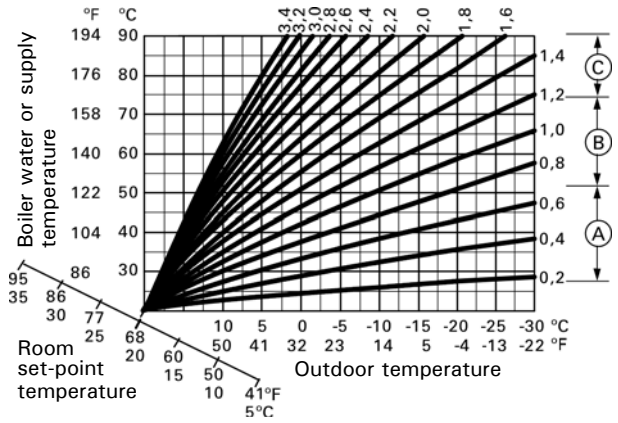
The following relay outputs can be controlled subject to the system equipment level:

Display		Explanation
"All actuators"	OFF	All actuators have been switched off.
"Output 20"	ON	Output 20 enabled.
"Output 52"	Open	-
"Output 52"	Neutral	-
"Output 52"	Closed	-
"DHW tank prim pump"	ON	Output for circulation pump for DHW tank heating enabled.
"DHW circ pump"	ON	Output for DHW recirculation pump enabled.
"Output 29"	ON	Output 29 enabled.
"Central fault mess."	ON	-
"Htg circ pump HC2"	ON	Output heating circuit pump enabled (heating circuit with mixing valve M2).
"Mixing valve HC2"	Open	Output "Mixing valve open" enabled (heating circuit with mixing valve M2).
"Mixing valve HC2"	Closed	Output "Mixing valve closed" enabled (heating circuit with mixing valve M2).
"Htg circ pump HC3"	ON	Output heating circuit pump enabled (heating circuit with mixing valve M3).
"Mixing valve HC3"	Open	"Mixing valve open" enabled (heating circuit with mixing valve M3).
"Mixing valve HC3"	Closed	Output "Mixing valve open" enabled (heating circuit with mixing valve M3).
"EA1 output 1"	ON	Contact "P - S" on plug [157] for extension EA1 closed.
"AM1 output 1"	ON	Output enabled.
"AM1 output 2"	ON	Output enabled.
"Solar circuit pump"	ON	Output for solar circuit pump [24] at solar control module, type SM1, enabled.
"Solar circ pmp min"	ON	Output for solar circuit pump [24] at solar control module, type SM1, switched to minimum speed.
"Solar circ pmp max"	ON	Output for solar circuit pump [24] at solar control module, type SM1, switched to maximum speed.
"SM1 output 22"	ON	Output [22] at solar control module, type SM1, enabled.

Checking sensors

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Diagnosis"
3. Select group (see overview on page 51).
4. Scan actual temperature of the relevant sensor.

Adjusting Heating Curves



The heating curves illustrate the relationship between the outside temperature and the boiler water or supply temperature.
To put it simply: The lower the outside temperature, the higher the boiler water or supply temperature.
The room temperature, again, depends on the boiler water or the supply temperature.

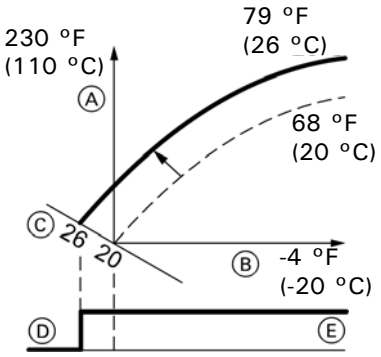
Settings in the factory set condition:

- Slope = 1.4
- Shift = 0

Example of outside temperature 7° F (−14° C)

Legend

Ⓐ Underfloor heating system, slope 0.2 to 0.8
Ⓑ Low temperature heating system, slope 0.8 to 1.6
Ⓒ Heating systems with a boiler water temperature in excess of 167° F (75° C), slope greater than 1.6



Legend

Ⓐ Boiler water temperature or supply temperature
Ⓑ Outside temperature
Ⓒ Set room temperature
Ⓓ Heating circuit pump OFF
Ⓔ Heating circuit pump ON

Selecting the set room temperature

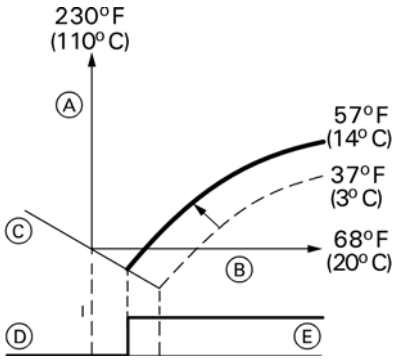
Individually adjustable for each heating circuit.
The heating curve is offset along the axis of the set room temperature. When the heating circuit pump logic function has been enabled, it modifies the starting and stopping characteristics of the heating circuit pump.

Standard set room temperature

Changing the standard room temperature from 68 to 79° F (20 to 26° C)

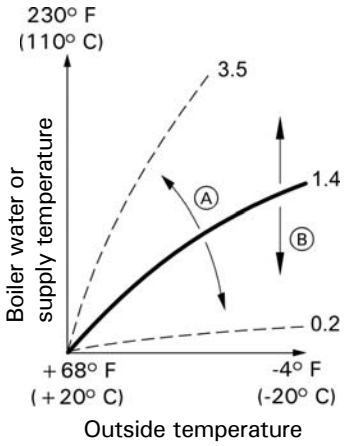
Operating instructions

Adjusting Heating Curves *(continued)*



Legend

Ⓐ Boiler water temperature or supply temperature
Ⓑ Outside temperature
Ⓒ Set room temperature
Ⓓ Heating circuit pump OFF
Ⓔ Heating circuit pump ON



Legend

Ⓐ Changing the slope
Ⓑ Changing the shift (vertical parallel offset of the heating curve)

Reduced set room temperature

Changing the reduced room temperature from 37 to 57° F (3 to 14° C)

Operating instructions

Changing the slope and shift

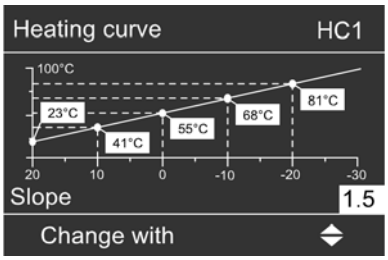
Individually adjustable for each heating circuit.

Extended menu:

1. ☰
2. "Heating"
3. Select heating circuit.
4. "Heating curve"
5. "Slope" or "Shift"
6. Select heating curve according to the system requirements.

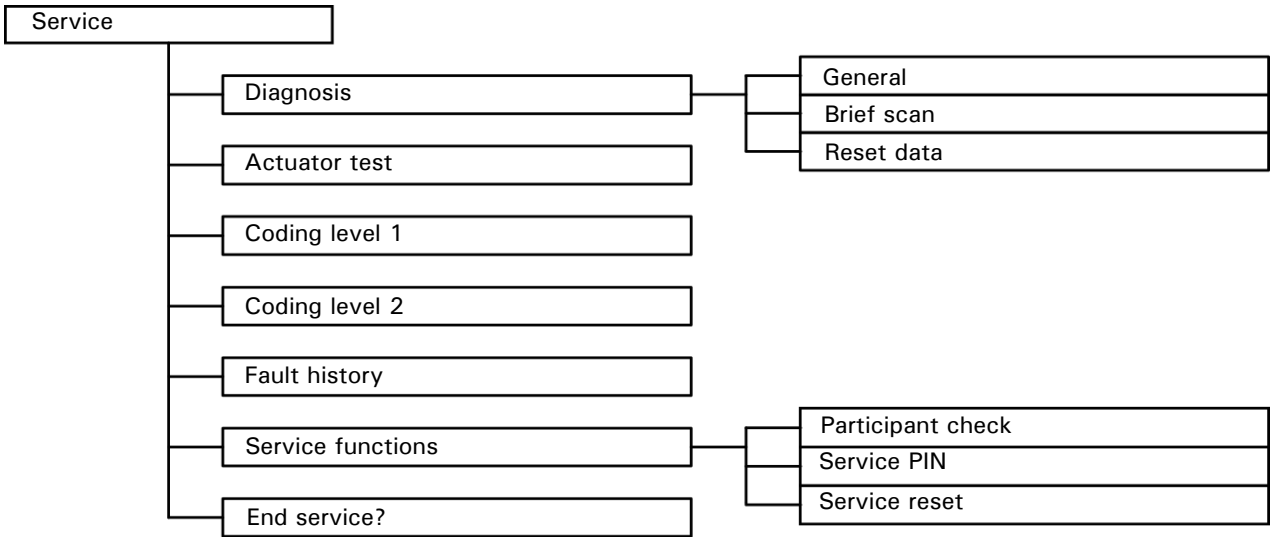
Example:

Heating curve setting with slope 1.5:



Calling up the Service Menu

Service menu overview



Press OK and ☰ simultaneously for approx. 4 sec.

"Coding level 2" is only displayed if this level has been enabled:

Press OK and ⮌ simultaneously for approx. 4 sec.

Exiting the Service Menu

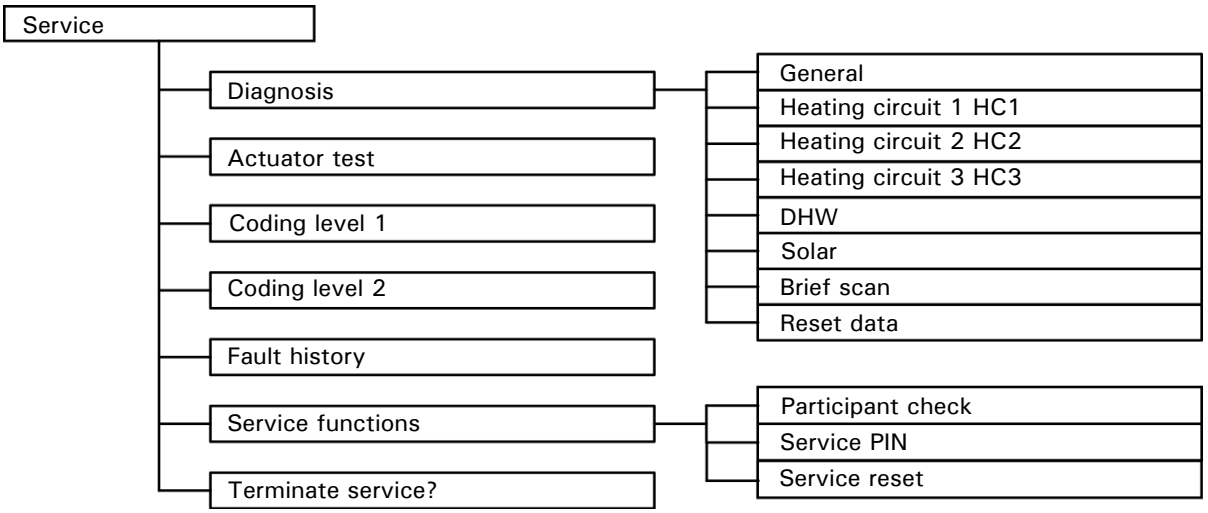
1. Select "End service?".
2. Select "Yes".
3. Confirm with OK.

Note: The system exits the service menu automatically after 30 min.

Calling up the Service Menu

Service menu overview

Press OK and ☰ simultaneously for approx. 4 sec.



"Coding level 2" is only displayed if this level has been enabled:

Press OK and ⮌ simultaneously for approx. 4 sec.

Scanning Operating Data

Operating data can be scanned in six areas (see "Diagnosis" in the overview "Service menu").
Operating data on heating circuits with mixing valves and solar can only be scanned if the components are installed in the system.
For further information on operating data, see chapter "Brief scan".

Note: "- - -" appears on the display if a sensor that has been scanned is faulty.

Calling up operating data

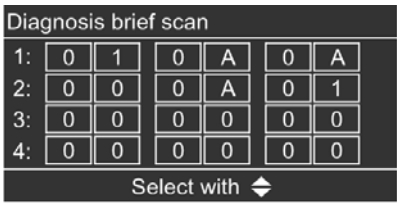
1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Diagnosis"
3. Select required group, e.g. "General".

Resetting operating data

Saved operating data (e.g. hours run) can be reset to 0. The value "Adjusted outside temp" is reset to the actual value.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Diagnosis"
3. "Reset data"
4. Select required value or "All details".

Brief Scan



In the brief scan, you can scan temperatures, software versions and connected components, for example.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. "Diagnosis"
3. "Brief scan".
4. Press OK. The display shows 9 lines with 6 fields each.

For an explanation of the relevant values in the individual lines, see the following table:

Line (brief scan)	Field					
	1	**2**	**3**	**4**	**5**	**6**
1:	System schemes 01 to 10		Control unit software version		Programming unit software version	
2:	2	0	0	0	Appliance identification ZE-ID	
3:	0	0	Number of KM BUS participants		Software version Solar control module	
4:	0	0	0	0	0	0
5:	0	0	0	0	Software version, extension AM1	Software version, extension EA1
6:	0	0	0	0	0	0
7:	Subnet address/system number		Node address		0	0
8:	SNVT config. 0: Auto 1: Tool	Software version Communic. coproc.	Software version Neuron Chip		Number of LON participants	
	System circuit HC1		**Heating circuit HC2**		**Heating circuit HC3**	
9:	0	0	0	0	0	0
10:	0	0	0	0	0	0
11:	0	0	Software version, extension for heating circuits 2 and 3 with mixing valve	0	Software version, extension for heating circuits 2 and 3 with mixing valve	0
			Note: The displays in fields 3 and 5 are the same.			

Scanning and Resetting Service Display

No service interval can be set at the Vitotronic 300-K. In other words, no service display is shown.

Note: If a service display appears on the Vitotronic 300, GW5B, the display will show "Participant fault" and the participant number.

Fault Codes

Displayed fault code	System characteristics	Cause	Measures
0F	Control mode.	Service "0F" is only displayed in the fault history.	Service the appliance. **Note:** After the service, set code "24:0" in group 2 "Boiler".
30	The burner is started and stopped via a temperature controller.	Short circuit, boiler water temperature sensor	Check the boiler water temperature sensor (see page 110).
38	The burner is started and stopped via a temperature controller.	Lead break, boiler water temperature sensor	Check the boiler water temperature sensor (see page 110).
60	Boiler with maximum temperature, no output reduction, mixing valve return temperature control "Open".	Short circuit, temperature sensor [17]A	Check temperature sensor (see page 110).
68	Boiler with maximum temperature, no output reduction, mixing valve return temperature control "Open".	Lead break, temperature sensor [17]A	Check temperature sensor (see page 110). Without temperature sensor: Set code "4A:0" in group 1 "General".
70	Shunt pump constantly "ON".	Short circuit, temperature sensor [17]B	Check temperature sensor (see page 110).
78	Shunt pump constantly "ON".	Lead break, temperature sensor [17]B	Check temperature sensor (see page 110). Without temperature sensor: Set code "4B:0" in group 1 "General".
A0	Boiler cools down.	Fault, safety equipment at "X7" of plug-in adaptor 2 for external safety equipment	Check safety equipment, and reset if required.
A1	Boiler cools down.	Fault, safety equipment at "X3" of plug-in adaptor 2 for external safety equipment	Check safety equipment, and reset if required.
A2	Boiler cools down.	Fault, safety equipment at "X2" of plug-in adaptor 2 for external safety equipment	Check safety equipment, and reset if required.
A3	Boiler cools down.	Fault, safety equipment at "X1" of plug-in adaptor 2 for external safety equipment	Check safety equipment, and reset if required.
AA	Control mode.	Therm-Control configuration fault: Plug [17]A not plugged in.	Insert plug [17]A. For Vitocrossal, code "0D: 0" in group 2 "Boiler" must be selected.
AC	Control mode.	Return temperature control configuration error: Code "0C:1" in group 2 "Boiler" has been set, but plug [17]A is not plugged in and/or code "4E:0" in group 1 "General" is not set.	Insert plug [17]A and check codes.

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
AD	Control mode.	Isolation valve configuration error: Code "0C:2", "0C: 3" or "0C:4" in group 2 "Boiler" is set and code "4E:1" in group 1 "General" is set.	With isolation valve: Set code "4E:0" in group 1 "General". Without isolation valve: Set code "0C:1" in group 2 "Boiler".
B0	Control mode.	Short circuit, flue gas temperature sensor	Check the flue gas temperature sensor (see page 110).
B1	Control mode.	Communication fault, programming unit	Check connections and replace the programming unit if required.
B5	Control mode.	Internal fault	Check PCB and plug-in connections; replace PCB if required.
B6	Control mode.	Invalid hardware recognized	Check coding address "92" in group 1 "General"; "92:161" must be set.
B7	Boiler is regulated by the temperature controller.	Boiler coding card faulty	Plug in boiler coding card or replace.
B8	Control mode.	Lead break, flue gas temperature sensor	Check the flue gas temperature sensor (see page 110). Without flue gas temperature sensor: Set code "1F:0" in group 2 "Boiler".
BF	Control mode. No communication via LON.	Incorrect LON communication module	Replace LON communication module.
C1	Boiler cools down.	External safety equipment at plug 150	Check connection and external safety equipment.
C8	Boiler cools down.	Fault, low water indicator at "X7" of plug-in adaptor 1 for external safety equipment	Check the system water level; reset low water indicator.
C9	Boiler cools down.	Fault, maximum pressure limiter at "X3" of plug-in adaptor 1 for external safety equipment	Check system pressure; reset maximum pressure limiter.
CA	Boiler cools down	Fault, minimum or maximum pressure limiter 2 at "X2" of plug-in adaptor 1 for external safety equipment	Check system pressure, reset minimum or maximum pressure limiter 2.
CB	Boiler cools down	Additional high limit safety cut-out fault or temperature limiter at "X1" of plug-in adaptor 1 for external safety equipment	Check system temperature; reset high limit safety cut-out.
CE	Control mode.	Communication fault, plug-in adaptor 1 for external safety equipment	Check plug-in adaptor. Without plug-in adaptor: Set code "30:0" in group 1 "General".
CF	Control mode. No communication via LON.	Communication fault, LON communication module of control unit	Check LON communication module and replace if required.
D1	Boiler cools down	Burner fault	Check the burner
D2	Control mode.	Communication fault, plug-in adaptor 2 for external safety equipment	Check plug-in adaptor. Without plug-in adaptor: Set code "31:0" in group 1 "General".
D4	Boiler cools down	The high limit safety cut-out has responded or fuse F2 has blown	Check the high limit safety cut-out or the burner, burner loop and fuse F2.

Fault Display

In the event of a fault, the red fault display flashes at the control unit. “Fault” is displayed and ⚠ flashes.
The fault code is displayed with OK.

Note: If a central fault message facility is connected, this is started.

For an explanation of the fault code, see chapter “Fault codes”.
For some faults, the type of fault is also displayed in plain text.

Acknowledging faults

Follow the instructions on the display.

Note: The fault message is transferred to the menu.
A fault message facility, if connected, will be switched off.
If an acknowledged fault is not remedied, the fault message will be re-displayed the following day and the fault message facility restarted.

Calling up acknowledged fault messages

Extended menu:

1. ☰
2. “Fault”

Calling up fault codes from the fault memory (fault history)

The 10 most recent faults (including those remedied) are saved and can be called up.
Faults are sorted by date.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. “Fault history”
3. “Display?”

Fault Codes

Displayed fault code	System characteristics	Cause	Measures
10	Activates at 32 °F (0° C) outside temperature.	Short circuit, outside temperature sensor	Check outside temperature sensor (see page 110).
18	Activates at 32 °F (0° C) outside temperature.	Lead break, outside temperature sensor	Check outside temperature sensor (see page 110).
20	Stand-alone control unit without supply temperature sensor (poss. supply temperature not high enough).	Short circuit, common supply temperature sensor	Check supply temperature sensor (see page 110).
28	Stand-alone control unit without supply temperature sensor (poss. supply temperature not high enough).	Lead break, common supply temperature sensor	Check supply temperature sensor (see page 110).
40	Mixing valve is closed.	Short circuit, supply temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check supply temperature sensor (see page 110).
44	Mixing valve is closed.	Short circuit, supply temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check supply temperature sensor (see page 110).
48	Mixing valve is closed.	Lead break, supply temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check supply temperature sensor (see page 110).
4C	Mixing valve is closed.	Lead break, supply temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check supply temperature sensor (see page 110).
50	DHW tank primary pump “ON”: Set DHW temperature = set supply temperature Priority control is cancelled. or With primary store system: DHW tank heating is started and stopped by DHW tank temperature sensor 2.	Short circuit, DHW tank temperature sensor 1	Check the DHW tank temperature sensor (see page 110).
51	With primary store system: DHW tank heating is started and stopped by DHW tank temperature sensor 1.	Short circuit, DHW tank temperature sensor 2	Check the DHW tank temperature sensor (see page 110).
58	DHW tank primary pump “ON”: Set DHW temperature = set supply temperature Priority control is cancelled. or With primary store system: DHW tank heating is started and stopped by DHW tank temperature sensor 2.	Lead break, DHW tank temperature sensor 1	Check the DHW tank temperature sensor (see page 110).
59	With primary store system: DHW tank heating is started and stopped by DHW tank temperature sensor 1.	Lead break, DHW tank temperature sensor 2	Check the DHW tank temperature sensor (see page 110).

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
60	Boiler with maximum temperature, no output reduction, mixing valve return temperature control “Open”.	Short circuit, temperature sensor [17]A	Check temperature sensor (see page 110).
68	Boiler with maximum temperature, no output reduction, mixing valve return temperature control “Open”.	Lead break, temperature sensor [17]A	Check temperature sensor (see page 110). Without temperature sensor: Set code “4A:0” in the “General” group.
70	Shunt pump constantly “ON”. With primary store system: 3-way mixing valve “Closed”; no DHW heating.	Short circuit, temperature sensor [17]B	Check temperature sensor (see page 110).
78	Shunt pump constantly “ON”. With primary store system: 3-way mixing valve “Closed”; no DHW heating.	Lead break, temperature sensor [17]B	Check temperature sensor (see page 110). Without temperature sensor: Set code “4b:0” in the “General” group.
90	Control mode.	Short circuit, temperature sensor [7], connection to solar control module.	Check temperature sensor [7] (see separate installation and service instructions).
91	Control mode.	Short circuit, temperature sensor [10], connection to solar control module.	Check temperature sensor [10] (see separate installation and service instructions).
92	No solar DHW heating.	Short circuit, collector temperature sensor, connection of temperature sensor [6] at solar control module or sensor at S1 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).
93	Control mode	Short circuit, temperature sensor, connection at S3 of the Vitosolic	Check sensor at the solar control unit (see separate installation and service instructions).
94	No solar DHW heating.	Short circuit, DHW tank temperature sensor, connection of temperature sensor [5] at solar control module or sensor at S2 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).
98	Control mode	Lead break, temperature sensor [7], connection to solar control module.	Check temperature sensor [7] (see separate installation and service instructions). Set coding address “20” in the “Solar” group.
99	Control mode	Lead break, temperature sensor [10], connection to solar control module.	Check temperature sensor [10] (see separate installation and service instructions). Set coding address “20” in the “Solar” group.
9A	No solar DHW heating.	Lead break, collector temperature sensor, connection of temperature sensor [6] at solar control module or sensor at S1 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
9B	Control mode.	Lead break, temperature sensor, connection at S3 of the Vitosolic	Check sensor at the solar control unit (see separate installation and service instructions).
9C	No solar DHW heating.	Lead break, DHW tank temperature sensor, connection of temperature sensor [5] at solar control module or sensor at S2 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).
9E	Control mode.	No flow rate in solar circuit or flow rate too low, or temperature limiter has responded.	Check solar circuit. Acknowledge fault message (see separate installation and service instructions).
9F	Control mode.	Solar control module or Vitosolic faulty. Displayed if a fault occurs at these devices for which there is no fault code in the Vitotronic.	Check solar control unit (see separate installation and service instructions).
AB	Control mode, DHW tank may be cold.	Primary store system configuration error: Code "55:3" has been selected in the "DHW" group, but plug [17]B is not plugged in and/or codes "4C:1" and "4E:2" in the "General" group have not been set.	Insert plug [17]B and check codes.
B1	Control mode.	Communication fault, programming unit	Check connections and replace the programming unit if required.
B5	Control mode.	Internal fault	Check PCB is plugged in correctly.
B6	Constant mode.	Invalid hardware recognized	Check coding address "92" in the "General" group; "92:187" must be set. **Note:** Code "8A:176" must be selected so that coding address "92" is displayed.
BA	Mixing valve "Closed".	Communication fault, PCB, extension for heating circuits 2 and 3 with mixing valve	Check that the PCB and ribbon cable are plugged in, and replace PCB if required.
BC	Control mode without remote control.	Communication fault, remote control Vitotrol system circuit A1 (heating circuit 1)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the "Heating circuit..." group.
BD	Control mode without remote control.	Communication fault, remote control Vitotrol, heating circuit with mixing valve M2 (heating circuit 2)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the "Heating circuit..." group.
BE	Control mode without remote control.	Communication fault, remote control Vitotrol with mixing valve M3 (heating circuit 3)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the "Heating circuit..." group.
BF	Control mode. No communication via LON.	Incorrect LON communication module	Replace LON communication module.

Fault Codes *(continued)*

Displayed fault code	System characteristics	Cause	Measures
C2	Control mode.	Lead break, KM BUS to solar control module or Vitosolic	Check KM BUS cable and appliance. Without solar control unit: Set code “54:0” in the “General” group.
CF	Control mode. No communication via LON.	Communication fault, LON communication module of control unit	Check LON communication module and replace if required.
D3	Control mode.	Communication fault extension EA1	Check connections (see page 88). Without extension EA1: Set code “5B:0” in the “General” group.
D5	Boiler ramps to the electronic maximum boiler water temperature limit.	Boiler does not log in at the cascade control unit	Check communication via participant check, leads/ cables to the Vitotronic 300, GW5B and codes.
D6	Control mode.	Input DE1 at extension EA1 reports a fault	Remove fault at appliance concerned.
D7	Control mode.	Input DE2 at extension EA1 reports a fault	Remove fault at appliance concerned.
D8	Control mode.	Input DE3 at extension EA1 reports a fault	Remove fault at appliance concerned.
DA	Control mode without room influence.	Short circuit, room temperature sensor, system circuit A1 (heating circuit 1)	Check the room temperature sensor (see page 110).
DB	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check the room temperature sensor (see page 110).
DC	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check the room temperature sensor (see page 110).
DD	Control mode without room influence.	Lead break, room temperature sensor, system circuit A1 (heating circuit 1)	Check room temperature sensor (see page 110) and adjustment of the remote control (see separate installation and service instructions).
DE	Control mode without room influence.	Lead break, room temperature sensor, heating circuit with mixing valve M2 (heating circuit 2)	Check room temperature sensor (see page 110) and adjustment of the remote control (see separate installation and service instructions).
DF	Control mode without room influence.	Lead break, room temperature sensor, heating circuit with mixing valve M3 (heating circuit 3)	Check room temperature sensor (see page 110) and adjustment of the remote control (see separate installation and service instructions).

Boiler Temperature Control of the Vitotronic 300 GW5B

Brief description

- The boiler water temperature is regulated by starting and stopping the burner or through modulation.
- The set boiler water temperature is specified by the Vitotronic 300-K cascade control unit.

Functions

The boiler water temperature is captured by the following equipment:

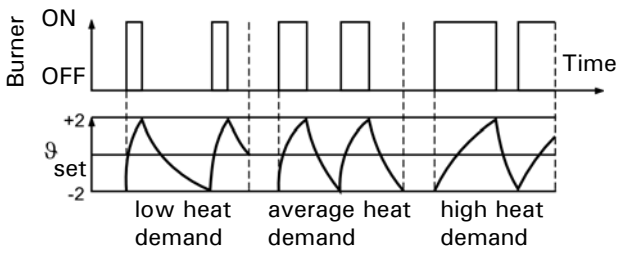
Upper control range limits

- High limit safety cut-out 210° F (99° C)
- Temperature controller TR 203/212/230° F (95/100/110° C)
- Electronic maximum temperature limit:
  - Setting range: 68 to 260° F (20 to 127° C)
  - Changed via coding address “06” in the “Boiler” group.

Lower control range limits

- In standard mode and when frost protection is enabled, the boiler water temperature will be regulated subject to the respective boiler.

Boiler Temperature Control of the Vitotronic 300, GW5B *(continued)*



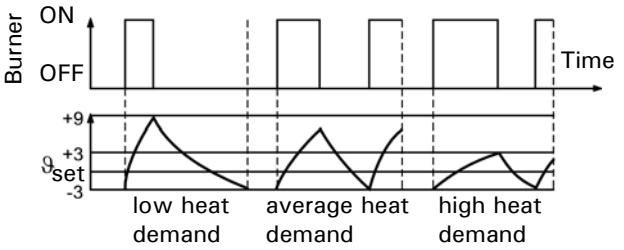
Switching hysteresis, burner

Permanent switching hysteresis

Code "04:0"

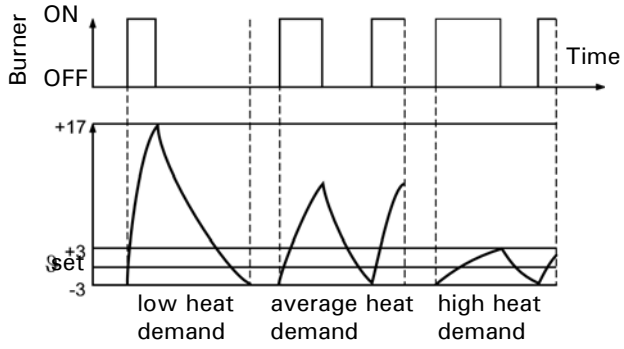
Heat demand-dependent switching hysteresis

The heat demand-dependent switching hysteresis takes the boiler load into account.
The switching hysteresis, i.e the burner runtime varies subject to actual heat demand.



ERB50 function

Code "04:1"
Subject to heat demand, values between 6 and 12 K result.



ERB80 function

Code "04:2"
Subject to heat demand, values between 6 and 20 K result.

Control sequence

Boiler goes cold

(set value − 2 K)
The burner start signal is selected as the set boiler water temperature minus 2 K, and the burner starts its own monitoring program.

Note: The burner start may be delayed by a few minutes subject to the number of auxiliary circuits and the combustion type.

Boiler heats up

(Set value + 2 K)
The burner shuts down.
Modulating burner:
The burner stop point is determined by the stop differential (coding address "13" in the "Boiler" group).

Cascade Control of the Vitotronic 300-K

Brief description

The supply temperature is regulated by starting or stopping the burners or by starting/stopping individual burner stages.

- Stand-alone control
- Sequential control
- Subject to the system version, we differentiate between condensing strategy and two conventional strategies.

Set supply temperature

The set supply temperature is determined from the following parameters:

- Set supply temperature of system circuit A1 (heating circuit 1) and heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
- Set supply temperature of further consumers.
- Set DHW temperature.
- External demands.
  Upper control range limits:
  Maximum limit of the system supply temperature (coding address “37” in the “Cascade” group).
  Lower control range limits:
  Minimum limit of the system supply temperature (coding address “36” in the “Cascade” group).

Cascading Layouts

Boilers connected in parallel

- Without and with supply temperature sensor.
- Set code “3B:0” or “3B:1” in the “Cascade” group.
- The cascade control specifies the set boiler water temperature for all currently active boilers. Every boiler control unit regulates to the specified set value.

The following control strategies are available:

- Condensing strategy
- Conventional strategy 1 (see page 64)
- Conventional strategy 2 (see page 64)

Boilers connected in series

- Without and with supply temperature sensor.
- Set code “3B:2” or “3B:3” in the “Cascade” group.
- The control strategy is set automatically to conventional strategy 2, code “3C:2” (see page 64).
- The cascade control specifies the set boiler water temperature for all currently active boilers. Every boiler control unit regulates to the specified set value. If the lead boiler (condensing boiler) does not achieve the specified set value, it will only act to control the return temperature of the conventional boiler downstream. The conventional boiler is started late and is also shut down late.
- **With supplytemperature sensor:**
  Set code “3B:1” or “3B:3” in the “Cascade” group.
  The control deviation is calculated from the set supply temperature and the actual supply temperature to determine the start and shutdown criteria.
- **Without supply temperature sensor:**
  Set code “3B:0” or “3B:2” in the “Cascade” group.
  To determine the start and stop criteria, the control deviation is calculated from the set boiler water temperature and the estimated average actual boiler water temperature of the currently active boilers.
  Only boilers with open isolation valves are taken into consideration.

Sequential control

- With supply temperature sensor.
- Set code “3B:4” in the “Cascade” group.
- The control strategy is set automatically to conventional strategy 2, code “3C:2” (see page 64).
- The cascade control unit regulates to the specified set supply temperature by stipulating the output for each individual boiler. The lead boiler can be operated in modulating mode. All other boilers are operated in two stages via a specified output (incl. modulating burners).

Control strategies

Condensing strategy

Benefit:
Optimum utilisation of the condensing effect and long burner runtimes.
Set code “3C:0” in the “Cascade” group.
It is the aim of the condensing strategy to operate as many boilers as possible at the lowest output level.

- **Starting criterion:**
  Boilers are started via an output statement (code “3D:1” in the “Cascade” group).
  An additional boiler will start if the currently required output can also be achieved by the currently active boilers plus the next boiler in the boiler sequence (see page 63).
- **Shutdown criterion:**
  The boilers are shut down via a shutdown integral. The shutdown criterion is met when the shutdown integral exceeds a limit set via coding address “46” in the “Cascade” group and the boiler started last will be shut down.

Cascade Control of the Vitotronic 300-K *(continued)*

Conventional strategy 1

Benefit:
As few boilers as possible are active.
Set code "3C:1" in the "Cascade" group.
Conventional boilers are preferably operated at their upper output range, to reliably prevent formation of condensate due to low return temperatures. With this strategy, an additional boiler will only be started if the maximum output of all currently active burners is insufficient to achieve the set supply temperature. A boiler will be shut down when the remaining boilers can achieve the required output on their own.

- **Starting criterion:**
  The boilers are started via a starting integral. The next boiler in the boiler sequence will be started if the value set in coding address "45" in the "Cascade" group is exceeded (see page 93).
- **Shutdown criterion:**
  Boilers are shut down via an output statement (code "3D:1" in the "Cascade" group). A boiler is shut down when the currently required output can be achieved without the boiler that was started last.

Conventional strategy 2

Benefit:
Long burner runtimes.
Code "3C:2" in the "Cascade" group (factory set condition).
An additional boiler will only be started if the maximum output of all currently active burners is insufficient to achieve the set supply temperature.
A boiler will be shut down if the burners were returned to their minimum output because of a large negative control deviation and the output is still too high.

- **Starting criterion:**
  The boilers are started via a starting integral. The next boiler in the boiler sequence will be started if the value set in coding address "45" in the "Cascade" group is exceeded (see page 93).
- **Shutdown criterion:**
  The boilers are shut down via a shutdown integral. The shutdown criterion is met when the shutdown integral exceeds a limit set via coding address "46" in the "Cascade" group and the boiler started last will be shut down.

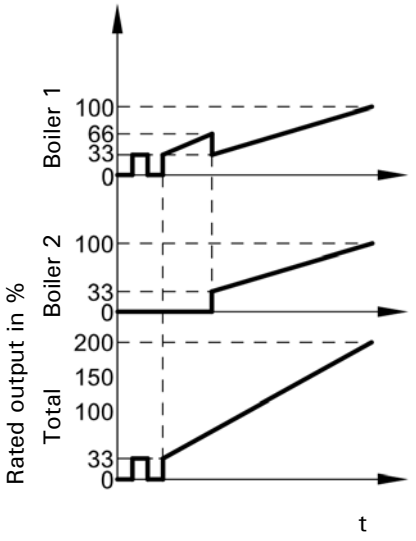
Condensing strategy (code "3C:0" in the "Cascade" group)

Example for the different control strategies

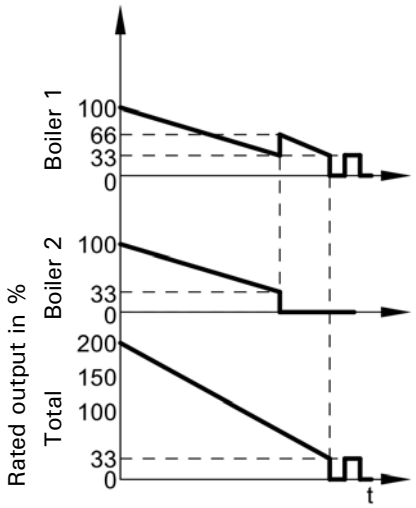
Two-boiler system with modulating burners:

- Boiler 1: 100% rated output (base load set to 33%)
- Boiler 2: 100% rated output (base load set to 33%)

Starting



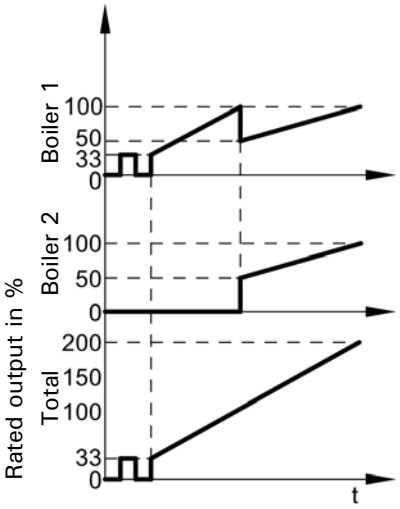
Shutdown



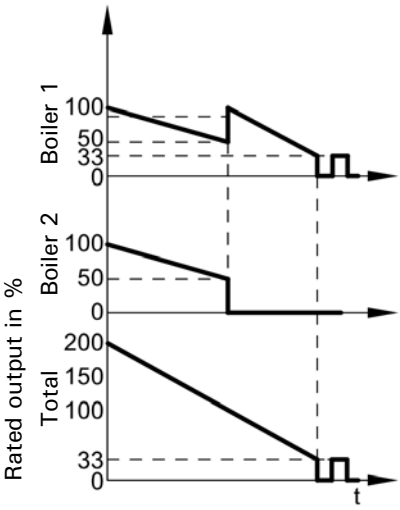
Cascade Control of the Vitotronic 300-K *(continued)*

Conventional strategy 1 (code "3C:1" in the "Cascade" group)

Starting

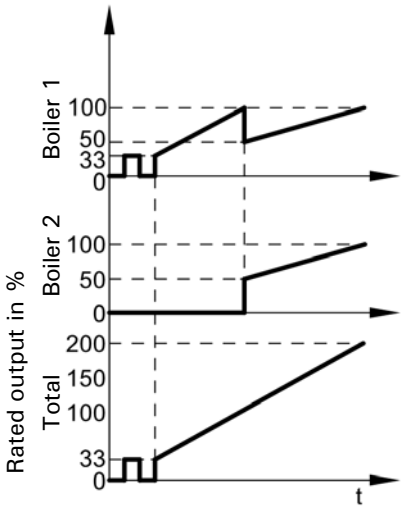


Shutdown

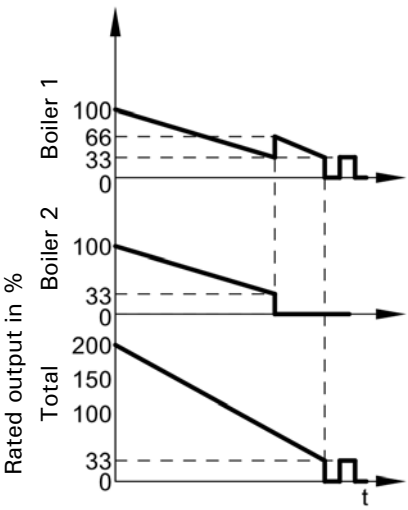


Conventional strategy 2 (code "3C:2" in the "Cascade" group)

Starting



Shutdown



5693 973 - 05

Heating Circuit Control Unit of the Vitotronic 300-K

Brief description

- The control unit has control circuits for one system circuit A1 (heating circuit 1) and two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
- The set supply temperature of every heating circuit is determined from the following parameters:
  – Outside temperature
  – Set room temperature
  – Operating mode
  – Heating curve slope and shift
- The supply temperature of the system circuit corresponds to the common system supply temperature.
- The supply temperature of the heating circuits with mixing valve is regulated by the gradual opening or closing of the mixing valves. The mixing valve motor control changes the actuating and pause times subject to the control differential (control deviation).

Functions

The system circuit is subject to the boiler water temperature and its control range limits.
The heating circuit pump is the only actuator.
The supply temperature of the heating circuits with mixing valve is recorded by the supply temperature sensor of the relevant heating circuit.

- Upper control limit: Electronic maximum supply temperature limit Coding address “C6” in the “Heating circuit...” group.
- Lower control range limit: Electronic minimum supply temperature limit Coding address “C5” in the “Heating circuit...” group.

Time program

In accordance with the time program in the “Heating and DHW” heating program, the control unit regulates between “Central heating at standard room temperature” and “Central heating at reduced room temperature”.
Every operating mode has its own set level.
4 time phases per day can be selected.

Outside temperature

A heating curve must be set for matching the control unit to the building and the heating system.
The heating curve characteristics determine the set boiler water temperature subject to outside temperature. An average outside temperature is used for control purposes. This comprises the actual and the adjusted outside temperature.

Room temperature

In conjunction with the remote control and room temperature hook-up (coding address “B0” in the “Heating circuit...” group):
Compared with the outside temperature, the room temperature has a greater influence on the set boiler water temperature (changed via coding address “B2” in the “Heating circuit...” group).
In conjunction with heating circuits with mixing valve:
For control differentials (actual value deviation) above 2 K room temperature, the influence can be increased again (coding address “B6” in the “Heating circuit...” group):

- Quick heat-up
  The set room temperature must be raised by at least 2 K by the following measures:
  – Enabling party mode
  – Changing from central heating with reduced temperature to central heating with standard temperature
  – Start optimization (coding address “B7” in the “Heating circuit...” group)
  Quick heat-up will stop when the set room temperature has been reached.

- Quick setback
  The set room temperature must be reduced by at least 2 K by the following measures:
  – Enabling economy mode
  – Changing from central heating with standard temperature to central heating with reduced temperature
  – Stop optimization (coding address “C1” in the “Heating circuit...” group)
  Quick setback will stop when the set room temperature has been reached.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*

DHW temperature

Priority control

- With priority control: (code "A2:2" in the "Heating circuit..." group):
  The set supply temperature is set to 32° F (0° C) during DHW tank heating. The mixing valve closes and the heating circuit pump is switched off.
- Without priority control: The heating circuit control unit continues to operate with the same set value.

Heating circuit pump logic (economy mode)

The heating circuit pump is switched off [set supply temperature set to 32° F (0° C)] if the outside temperature exceeds the value selected via coding address "A5" in the "Heating circuit..." group.

Extended economy mode

The heating circuit pump is switched off [set supply temperature set to 32° F (0° C)] if one of the following criteria is met:

- The adjusted outside temperature exceeds the value selected via coding address "A6" in the "Heating circuit..." group.
- The heating circuit pump can be switched off for a time calculated by the control unit when changing over from heating mode to reduced mode.

  Requirement:
  – There is no risk of frost.
  – Coding address "B0" in the "Heating circuit..." group must be set to 0.

  The idle period can be individually adjusted via coding address "A9" in the "Heating circuit..." group.

  Note: If, during the pump idle period, the system is switched over to heating mode or the set room temperature is increased, the heating circuit pump is switched on, even if the period has not yet expired.
- The actual room temperature exceeds the value selected via coding address "B5" in the "Heating circuit..." group.
- The mixing valve has been closed for 12 min. (mixing valve economy function, coding address "A7" in the "Heating circuit..." group).

System dynamics

You can influence the control characteristics of the mixing valves via coding address "C4" in the "Heating circuit..." group.

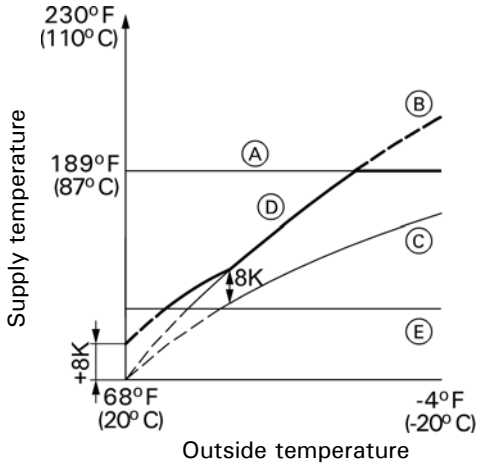
Central control

Central control for a heating circuit can be programmed via coding address "7A" in the "General" group.
The heating and holiday program then applies to all additional heating circuits of the system.
For these heating circuits, when the heating and holiday program is enabled, "Central control" is displayed. Any holiday programs that may have been set will be deleted. Party and economy modes cannot be enabled on all control units.

Frost protection

The supply temperature is maintained in accordance with the heating curve for the reduced set room temperature, but at min. 50° F (10° C).
A variable frost limit can be set in accordance with coding address "A3" in the "Heating circuit..." group.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*



Legend

Ⓐ Maximum supply temperature limit (coding address "37" in the "Cascade" group)
Ⓑ Slope = 1.8 for system circuit
Ⓒ Slope = 1.2 for heating circuit with mixing valve
Ⓓ Common supply temperature (at a differential temperature = 8 K)
Ⓔ Lower common supply temperature

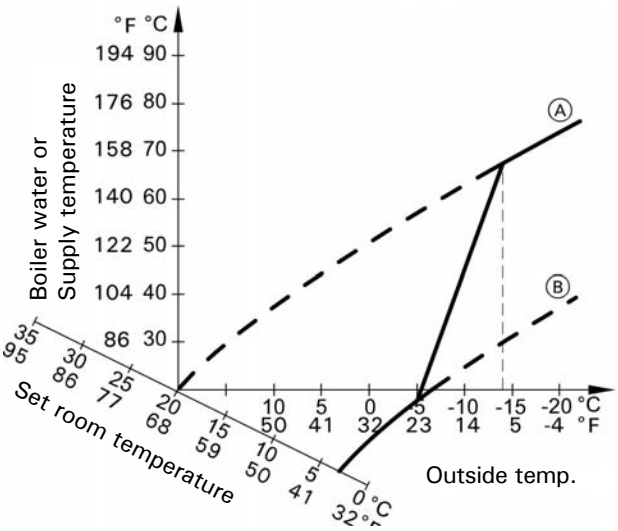
Supply temperature control

Differential temperature:
The differential temperature is adjustable via coding address "9F" in the "General" group, factory set condition 8 K.
The differential temperature is the value by which the common supply temperature should be higher than the highest currently required supply temperature of the heating circuit with mixing valve.

- System with only one heating circuit with mixing valve:
  The common set supply temperature is regulated automatically to 8 K above the set supply temperature of the heating circuit with mixing valve.
- System with system circuit and heating circuits with mixing valve:
  The common set supply temperature operates in accordance with its own heating curve. The differential temperature of 8 K towards the set supply temperature of the heating circuits with mixing valve is set at the factory.

Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to the outside temperature. The temperature is raised in accordance with the selected heating curve, but no higher than the set standard room temperature.
The outside temperature limits for the start and end of the temperature raising can be adjusted via coding addresses "F8" and "F9" in the "Heating circuit..." group.



Legend

Ⓐ Heating curve for operation with standard room temperature
Ⓑ Heating curve for operation with reduced room temperature

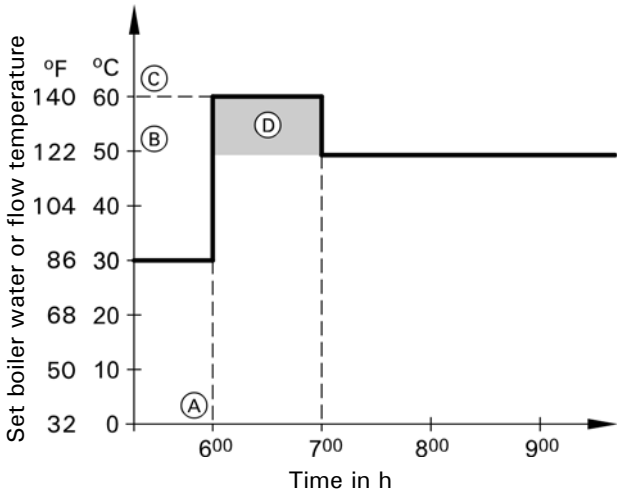
Example using the settings in the factory set condition

Reducing the heat-up time

During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or supply temperature will be raised in accordance with the selected heating curve. The boiler water or supply temperature increase can be automatically raised.
The value and duration of the additional increase of the set boiler water or supply temperature can be adjusted in coding addresses "FA" and "FB" in the "Heating circuit..." group.

Heating Circuit Control Unit of the Vitotronic 300-K *(continued)*

Example using the settings in the factory set condition



Legend

Ⓐ Start of operation with standard room temperature
Ⓑ Set boiler water or supply temperature in accordance with the selected heating curve
Ⓒ Set boiler water or supply temperature in accordance with coding address "FA":
122° F + 20% = 146° F
(50° C + 20% = 60° C)
Ⓓ Duration of operation with raised set boiler water or supply temperature in accordance with coding address "FB": 60 min.

Control sequence

Mixing valve circuit

The mixing valve motor will not be controlled within the "neutral zone" (±1 K).

Supply temperature drops

(Set value −1 K)
The mixing valve motor receives the signal "Mixing valve open". The signal duration lengthens with an increasing control differential.
The duration of pauses reduces with an increasing control differential.

Supply temperature rises

(Set value +1 K)
The mixing valve motor receives the signal "Mixing valve closed". The signal duration lengthens with an increasing control differential.
The duration of pauses reduces with an increasing control differential.

5693 973 - 05

DHW Tank Temperature Control of the Vitotronic 300-K

Brief description

- The DHW tank temperature control is a constant temperature control. This is the result of starting and stopping the circulation pump for DHW tank heating. The switching differential is ±2.5 K.
- When the DHW tank is heated, a set supply temperature is specified that is 20 K higher than the set DHW temperature (adjustable via coding address "60" in the "DHW" group).

Functions

Time program

An automatic or an individual time program may be selected for DHW heating and the DHW recirculation pump.
Compared with the heating circuit heatup phase, DHW heating starts 30 min. earlier in automatic mode.
The individual time program enables up to 4 time phases per day to be set for DHW heating and the DHW recirculation pump for every day of the week.
All DHW tank heating sequences will be completed independently of the time program.

In conjunction with coding address "7F" in the "General" group

- Detached house Code "7F:1":
  - Automatic mode
    The heating times for heating circuit 1 are applied to systems with two or three heating circuits.
  - Individual time program
    The time phases for DHW heating and the DHW recirculation pump have the same effect on all heating circuits.
- Apartment building
  Code "7F:0":
  - Automatic mode
    For systems with two or three heating circuits, the heating times for the relevant heating circuit will be applied.
  - Individual time program
    The time phases for DHW heating and the DHW recirculation pump can be adjusted individually for each heating circuit.

Priority control

- With priority control: (code "A2:2" in the "Heating circuit..." group):
  The set supply temperature is set to 32° F (0° C) during DHW tank heating. The mixing valve closes and the heating circuit pump is switched off.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Frost protection

The DHW tank will be heated to 68° F (20° C) if the DHW temperature sinks below 41° F (5° C).

Auxiliary function for DHW heating

This function is activated by providing a second set DHW temperature via coding address "58" in group "DHW" and activating the fourth DHW phase for DHW heating.

Set DHW temperature

The set DHW temperature can be adjusted between 50 and 140° F (10 and 60° C).
The set value range can be extended to 203° F (95 °C) via coding address "56" in the "DHW" group.
The set default value of the programming unit and/or the Vitotrol 300A remote control units can be allocated via coding address "66" in the "DHW" group.

DHW recirculation pump

This delivers hot water to the draw-off points at adjustable times.
Four time phases can be selected at the control unit for every day.

Auxiliary circuits

DHW heating in conjunction with the heating circuits can be disabled or enabled by changing over the heating program (see coding address "D5" in the "Heating circuit ..." group).

System with primary store system

The above functions also apply in conjunction with primary store systems.
Set the following codes:
"55:3" in the "DHW" group; "4C:1", "4E":
2 in the "General" group.

System with solar control unit

A third set DHW temperature can be specified via coding address "67" in the "DHW" group.
The DHW tank is only reheated by the boiler if the temperature falls below this value.

DHW Tank Temperature Control of the Vitotronic 300-K *(continued)*

Control sequence

Code "55:0" in the "DHW" group, DHW tank heating

The DHW tank goes cold (set value −2.5 K, adjustable via coding address "59"):

- The common set supply temperature is set 20 K higher than the set DHW temperature (adjustable via coding address "60").

The DHW tank is hot (set value +2.5 K):

- The common set supply temperature is returned to the set weather-compensated value.
- Pump run-on:
  The circulation pump runs on after DHW tank heating until one of the following criteria is met:
  – The set DHW temperature is exceeded by 5 K.
  – The set max. run-on time is reached (coding address "62").
- Without pump run-on (code "62:0").

Code "55:1" in the "DHW" group, adaptive DHW tank heating

With adaptive DHW tank heating, the speed of the temperature rise during DHW heating is taken into account.

The DHW tank goes cold (set value −2.5 K, adjustable via coding address "59"):

- The common set supply temperature is set 20 K higher than the set DHW temperature (adjustable via coding address "60").

The DHW tank is hot:

- The control unit checks whether the boiler will be required to supply heat after the DHW tank has been heated up or whether residual boiler heat should be transferred to the DHW tank. Accordingly, the control unit determines the burner and circulation pump stop times to prevent the set DHW temperature being substantially exceeded after the DHW tank has been heated up.

Code "55:2" in the "DHW" group, DHW tank temperature control with 2 DHW tank temperature sensors

DHW tank temperature sensor 1 enables the circulation pump for DHW tank heating and is evaluated for stop conditions during the pump run-on time.
DHW tank temperature sensor 2:
The DHW tank heating will be switched on early if a lot of hot water is drawn off. The DHW tank heating will be switched off early if no hot water is drawn off.

DHW tank goes cold:

- Set value −2.5 K, adjustable via coding address "59"
  or
- Actual DHW temperature at sensor 2 < set DHW temperature x factor for start time (adjustment via coding address "69")

The DHW tank is hot:

- Set value +2.5 K
  and
- Actual DHW temperature at sensor 2 > set DHW temperature x factor for stop time (adjustment via coding address "68")

Code "55:3" in the "DHW" group, DHW tank temperature control, primary store system

The DHW tank goes cold (set value −2.5 K, adjustable via coding address "59"):

- The common set supply temperature is set 20 K higher than the set DHW temperature (change via coding address "60").
- The primary pump in the primary store system starts.
- The 3-way mixing valve opens and then regulates to the specified set value.
- The circulation pump for DHW tank heating cycles (briefly switches on and off) until the set supply temperature has been reached (set DHW temperature + 5 K). Then it runs constantly. If, during heating, the actual value falls below the required set temperature, the circulation pump for DHW tank heating will temporarily cycle again.

The DHW tank is hot:

- DHW tank temperature sensor 1:
  Actual value ≥ set value
  and
  DHW tank temperature sensor 2:
  Actual value > set value −1.5 K:
- The common set supply temperature is returned to the set weather-compensated value.
- The circulation pump for DHW tank heating stops immediately when the 3-way mixing valve is fully opened.
  or
- The circulation pump for DHW tank heating stops after expiry of the run-on time that is selected via code "62".

Calling up Coding Level 1

Prior to coding the Vitotronic 300 GW5B, ensure the boiler is in cascade mode. Refer to page 25.

For the Vitotronic 300 GW5B, see boiler Service Instructions

1. Press ☰ and **OK** for approximately 4 seconds.
2. Use ▲/▼ to scroll to service and select with **OK**.
3. Use ▲/▼ to scroll to service functions and select with **OK**.
3. Use ▲/▼ to scroll to multi-boiler system and select with **OK**.
4. Use ▲/▼ to select 'yes'.
5. Allow control to restart.
6. Upon restart, use ▲/▼ to select 'language'.

Note: Codes are displayed as plain text.

Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.

1. Press **OK** and ☰ for approximately 4 seconds.
2. "Coding level 1"
3. Select group of required coding address:
   - "General"
   - "Boiler"
   - "All codes std. device"

   In this group, all coding addresses from coding level 1
4. Select coding address.
5. Select value according to the following tables and confirm with **OK**.
6. If you want to reset all codes to their factory setting: Select "Standard setting" in "Coding level 1".
   Note: This also resets codes from coding level 2.

Group 1 "General"

Coding

Coding in the factory set condition		**Possible change**	
System design			
00:0	Set automatically if code "01:2" is set. Boiler control unit is linked into the cascade.	00:1	No function.
Servomotor runtime			
40:...	Runtime, isolation valve servomotor at plug 52A1. Factory set condition specified by boiler coding card.	40:5 to 40:199	Runtime adjustable from 5 to 199 sec.
Participant no.			
77:1	LON participant number. If this address does not appear, power down the control and install the LON card and restart.	77:1 to 77:99	LON participant number, adjustable from 1 to 99.
8F:0	Operation in the standard menu and extended menu enabled. **Note:** The respective code is only activated when you exit the service menu(see page 37).	8F:1	Operation in standard menu and extended menu blocked.
		8F:2	Operation enabled in the standard menu and blocked in the extended menu.

Group 2 “Boiler”

Coding

Coding in the factory set condition		**Possible change**	
System design			
01:2	Multi boiler system with cascade control via LON.	01:1	Single boiler system.
		01:3	Do not adjust.
Boiler			
07:1	Consecutive boiler number in multi boiler system.	07:2 to 07:4	Consecutive boiler number in multi boiler system.
Flue gas monitor			
1F:0	With flue gas temperature sensor: Flue gas temperature is not monitored for service display.	1F: 34 (1) to 1F: 482° F (250° C)	When the limit for the flue gas temperature is exceeded, 🔧 is displayed.
Burner service in 100 hour			
21:0	No service interval (hours run) selected.	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h; 1 step ≙ 100 h
Service interval in months			
23:0	No interval for service.	 to 23:24	Interval adjustable from 1 to 24 months.
Service status			
24:0	No 🔧 display.	24:1	🔧 display (the address is automatically set and must be manually reset after a service has been carried out).

5693 973 - 05

Calling up Coding Level 2

Note: At coding level 2, all codes are accessible, including the codes at coding level 1.

Codes that have not been assigned due to the heating system equipment level or the setting of other codes are not displayed.

1. Press **OK** and ☰ simultaneously for approximately 4 seconds.
2. Press **OK** and ⮌ simultaneously for approximately 4 seconds.
3. "Coding level 2"
4. Select group of required coding address:
   - "General"
   - "Boiler"
5. Select coding address.
6. Select value according to the following tables and confirm with "**OK**".
7. If you want to reset all codes to their factory setting: Select "Standard setting" in "Coding level 2".

   Note: This also resets codes at coding level 1.

Group 1 "General" *(continued)*

Coding

Coding in the factory set condition		**Possible change**	
00:0	Set automatically if code "01:2" is set. Boiler control unit is linked into the cascade.	00:1	No function.
30:0	Without plug-in adaptor 1, external safety equipment.	30:1	With plug-in adaptor 1, external safety equipment; automatic recognition.
31:0	Without plug-in adaptor 2, external safety equipment.	31:1	With plug-in adaptor 2, external safety equipment; automatic recognition.
32:0	Without extension AM1.	32:1	With extension AM1; automatic recognition.
33:1	Function output A1 at extension AM1: Heating circuit pump.	33:3	Circulation pump for neutralizing system or flue gas/ water heat exchanger.
34:0	Function output A2 at extension AM1: DHW recirculation pump.	34:3	Circulation pump for neutralizing system or flue gas/ water heat exchanger.
40:...	Runtime, isolation valve servomotor at plug [52]A1. Factory set condition specified by boiler coding card.	40:5 to 40:199	Runtime adjustable from 5 to 199 sec.
4A:0	Sensor [17]A not available.	4A:1	Sensor [17]A available (e.g. Therm-Control temperature sensor); automatic recognition.
4B:0	Sensor [17]B not available.	4B:1	Sensor [17]B available (e.g. return temperature sensor T2); automatic recognition.
4C:2	Connection at plug [20]: Switching contact, Therm-Control.	4C:1	Do not adjust.
		4C:3	Circulation pump – flue gas/water heat exchanger.
4D:1	Connection at plug [29]: Shunt pump.	4D:2	Boiler circuit pump.
		4D:3	Boiler circuit pump with isolation valve function.
4E:0	Connection at plug [52]: Motor for isolation valve.	4E:1	Motor for 3-way mixing valve for return temperature control.
		4E:2	Do not adjust.
4F:5	Run-on time, shunt or boiler circuit pump 5 min.	4F:0	No pump run-on.
		4F:1 to 4F:60	Run-on time adjustable from 1 to 60 min.

5693 973 - 05

Group 1 "General" *(continued)*

Coding

Coding in the factory set condition		Possible change	
52:0	Do Not Adjust	--	--
54:0	Do Not Adjust	--	--
5B:0	Without extension EA1.	5B:1	With extension EA1; automatic recognition.
5C:0	Function, output 157 at extension EA1: Central fault message.	5C:1	No function.
		5C:2	No function.
		5C:3	No function.
		5C:4	No function.
		5C:5	No function.
5D:0	Function input DE1 at extension EA1: No function.	5D:1	No function.
		5D:2	No function.
		5D:3	External blocking.
		5D:4	External blocking with fault message.
		5D:5	Fault message input.
		5D:6	No function.
5E:0	Function input DE2 at extension EA1: No function.	5E:1	No function.
		5E:2	No function.
		5E:3	External blocking.
		5E:4	External blocking with fault message.
		5E:5	Fault message input.
		5E:6	No function.

Group 1 "General" *(continued)*

Coding in the factory set condition		Possible change	
5F:0	Function input DE3 at extension EA1: No function.	5F:1	No function.
		5F:2	No function.
		5F:3	External blocking.
		5F:4	External blocking with fault message.
		5F:5	Fault message input.
		5F:6	No function.
6C:0	No run-on time neutralizing system.	6C:1 to 6C:255	Run-on time neutralizing system at output A1 at extension AM1, adjustable from 1 to 255 sec.
6D:0	No run-on time neutralizing system.	6D:1 to 6D:255	Run-on time neutralizing system at output A2 at extension AM1, adjustable from 1 to 255 sec.
76:0	Without LON communication module.	76:1	With LON communication module; automatic recognition.
77:1	LON participant number.	77:1 to 77:99	LON participant number, adjustable from 1 to 99.
78:1	LON communication enabled.	78:0	LON communication disabled.
79:0	Control unit is not fault manager.	79:1	Control unit is fault manager.

Group 1 "General" *(continued)*

Coding in the factory set condition		Possible change	
80:6	If a fault occurs for at least 30 sec., a fault message is displayed.	88:0	Immediate fault message.
		80:2 to 80:199	The minimum fault duration until a fault message is issued is adjustable from 10 to 995 sec; 1 step ≙ 5 sec.
88:0	Temperature displayed in °C (Celsius).	88:1	Temperature displayed in °F (Fahrenheit).
8A:175	Do Not Adjust.	--	--
8B:0	Do Not Adjust.	--	--
8F:0	Operation in the standard menu and extended menu enabled. **Note:** The respective code is only activated when you exit the service menu (see page 50).	8F:1	Operation in standard menu and extended menu blocked.
		8F:2	Operation enabled in the standard menu and blocked in the extended menu.
93:0	Fault messages during emissions test function/service display do not affect central fault messages.	93:1	Fault messages during emissions test function/ service display affect central fault messages.
95:0	Do Not Adjust.	95:1	--
98:1	Viessmann system number (in conjunction with monitoring several systems via Vitocom 300).	98:1 to 98:5	System number adjustable from 1 to 5.
9B:0	Do not adjust.	--	--
9C:20	Monitoring LON participants: If there is no response from a participant, values specified by the control unit are used after 20 min and a fault message is issued	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 min.
9D:0	Do not adjust.	--	--

Group 2 "Boiler" *(continued)*

Coding in the factory set condition		Possible change	
01:2	Multi boiler system with cascade control via LON.	01:1	Single boiler system.
		01:3	Do not adjust.
07:1	Consecutive boiler number in multi boiler system.	07:2 to 07:4	Consecutive boiler number in multi boiler system.
0C:5	Modulating isolation valve, independent of the set boiler water temperature.	0C:0	No function.
		0C:1	Constant return temperature control.
		0C:2	Time-controlled isolation valve.
		0C:3	Isolation valve switching, subject to the set boiler water temperature.
		0C:4	Modulating isolation valve, subject to the set boiler water temperature.
0D:2	With Therm-Control, affects the isolation valve (function disabled with code "0C:1").	0D:0	Without Therm-Control.
		0D:1	With Therm-Control, affects the mixing valves of downstream heating circuits.
1F:0	With flue gas temperature sensor: Flue gas temperature is not monitored for service display.	1F: 34 (1) to 1F: 482°F (250°C)	When the flue gas temperature limit is exceeded, 🔧 is displayed.
21:0	No service interval (hours run) selected.	21:1 to 21:100	The number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h. 1 step ≙ 100 h.
23:0	No interval for service.	23:1 to 23:24	Interval adjustable from 1 to 24 months.
24:0	No 🔧 display.	24:1	🔧 display (the address is automatically set and must be manually reset after a service has been carried out).
2B:5	Maximum preheating time of the isolation valve 5 min.	2B:0	No preheating time.
		2B:1 to 2B:60	Preheating adjustable from 1 to 60 min.
2C:5	Maximum run-on time of the isolation valve 5 min.	2C:0	No run-on time.
		2C:1 to 2C:60	Run-on time adjustable from 1 to 60 min.
2D:0	Shunt pump control function only "ON" if the boiler is enabled.	2D:1	Shunt pump control function permanently "ON".

5693 973 - 05

Calling up Coding Level 1

Note:

- The codes are displayed as plain text.
- Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.
- Heating systems with one system circuit and one or two heating circuits with mixing valve: In the following, the system circuit is designated “Heating circuit 1” and the heating circuits with mixing valve as “Heating circuit 2” or “Heating circuit 3”. If the heating circuits were given individual designations, the selected designation and “HC1”, “HC2” or “HC3” appear instead.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. “Coding level 1”
3. Select group of required coding address:
   - “General”
   - “Cascade”
   - “DHW”
   - “Solar”
   - “Heating circuit 1/2/3”
   - “All codes std device”
     In this group, all coding addresses from coding level 1 (except the coding addresses from the “Solar” group) are displayed in ascending order.
4. Select coding address.
5. Select value according to the following tables and confirm with OK.
6. If you want to reset all codes to their factory set condition:
   Select “Standard setting” in “Coding level 1”.
   Note: This also resets codes from coding level 2.

"General" Group

Coding

Coding in the factory set condition		Possible change	
System design			
00:1	One system circuit A1 (heating circuit 1), without DHW heating	00:2 to 00:10	For system schemes, see the following table.

Value address 00: ...	Description
2	One system circuit A1 (heating circuit 1) with DHW heating (automatic recognition)
3	One heating circuit with mixing valve M2 (heating circuit 2) without DHW heating
4	One heating circuit with mixing valve M2 (heating circuit 2) with DHW heating
5	One system circuit A1 (heating circuit 1) One heating circuit with mixing valve M2 (heating circuit 2) without DHW heating (automatic recognition)
6	One system circuit A1 (heating circuit 1) One heating circuit with mixing valve M2 (heating circuit 2) with DHW heating (automatic recognition)
7	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating
8	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating
9	One system circuit A1 (heating circuit 1) Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating (automatic recognition).
10	One system circuit A1 (heating circuit 1) Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating (automatic recognition).

Coding in the factory set condition		Possible change	
Servomotor runtime			
40:125	3-way mixing valve servomotor runtime in conjunction with permanent return temperature control at plug 52 A1 125 s.	40:5 to 40:199	Runtime adjustable from 5 to 199 sec.
Participant no.			
77:5	LON participant number.	77:1 to 77:99	LON participant number, adjustable from 1 to 99: 1 - 4 = Boiler control unit 5 = Cascade control unit 10 - 98 = Vitotronic 200-H 99 = Vitocom
Detached house/apartment building			
7F:1	Detached house.	7F:0	Apartment building. Separate adjustment of holiday program and time program for DHW heating possible.
General			
8F:0	Operation in the standard menu and extended menu enabled. **Note:** The relevant code is only enabled when you exit the service level (see page 51)	8F:1	Operation in the standard menu and extended menu blocked.
		8F:2	Operation enabled in the standard menu; blocked in the extended menu.
Set supply temperature for external demand			
9B:70	Set supply temperature for external demand 158° F (70° C).	9B:0	No default set value.
		9B:1 to 9B:127	Set supply temperature adjustable from 34 to 260° F (1 to 127° C).

"Cascade" Group

Coding

Coding in the factory set condition		Possible change	
Number of boilers in cascade			
35:4	4 boilers connected to the Vitotronic 300-K.	35:1 to 35:4	1 to 4 boilers connected to the Vitotronic 300-K.
Min. system supply temperature			
36:0	Electronic minimum system supply temperature limit set to 32° F (0° C).	36:1 to 36:127	Minimum limit adjustable from 32 to 260° F (0 to 127° C).
Max. system supply temperature			
37:80	Electronic maximum system supply temperature limit set to 176° F (80° C).	37:20 to 37:127	Maximum limit adjustable from 68 to 260° F (20 to 127° C). **Note:** Value must not be higher than the lowest value of coding address "06" in the "Boiler" group of every Vitotronic 300, GW5B.
Control type			
3B:1	Stand-alone parallel boiler circuit with supply temperature sensor (see page 62).	3B:0	Stand-alone parallel boiler circuit without supply temperature sensor (see page 62).
		3B:2	Stand-alone serial boiler circuit without supply temperature sensor (see page 62).
		3B:3	Stand-alone serial boiler circuit with supply temperature sensor (see page 62).
		3B:4	Sequential control with supply temperature sensor (see page 62).
Control strategy			
3C:2	Conventional strategy 2 (see page 64).	3C:0	Condensing strategy (see page 63).
		3C:1	Conventional strategy 1 (see page 64).

"DHW" Group

Coding

Coding in the factory set condition		Possible change	
DHW			
67:40	For solar DHW heating: Set DHW temperature 104° F (40° C). Reheating is suppressed above the selected set temperature (DHW heating by the boiler only if solar energy is not sufficient).	67:0	No third set value.
		67:10 to 67:95	Set DHW temperature adjustable from 50 to 203° F (10 to 95° C) (limited by boiler specific parameters). Observe the setting of coding address "56".
Enable DHW recirculation pump			
73:0	DHW recirculation pump: "ON" according to time program.	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min. during the time program.
		73:7	Constantly "ON".

"Solar" Group

Only in conjunction with solar control module, type SM1.

Coding

Coding in the factory set condition		Possible change	
Speed control solar circuit pump			
02:0	Solar circuit pump (multi stage) without speed control by solar control module SM1.	02:1	Solar circuit pump (multi stage) is speed-controlled with wave pack control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
DHW tank maximum temperature			
08:60	The solar circuit pump stops when the actual DHW temperature reaches the maximum DHW tank temperature 140° F (60° C).	08:10 to 08:90	The maximum DHW tank temperature is adjustable from 50 to 194° F (10 to 90° C).
Stagnation time reduction			
0A:5	To protect system components and heat transfer medium: the speed of the solar circuit pump is reduced if the actual DHW temperature is 5 K below the maximum DHW tank temperature.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Value for stagnation time reduction is adjustable from 1 to 40 K.
Flow rate solar circuit			
0F:70	The solar circuit flow rate at maximum pump speed is 7 l/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min; 1 step ≙ 0.1 l/min.
Extended solar control functions			
20:0	No extended control functions enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW tanks.

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group

Coding

Coding in the factory set condition		Possible change	
Priority DHW heating			
A2:2	DHW tank priority applicable to heating circuit pump and mixing valve.	A2:0	Without DHW tank priority applicable to heating circuit pump and mixing valve.
		A2:1	DHW tank priority applies only to the mixing valves.
Economy function outside temperature			
A5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) $AT > RT_{set} + 1\ K$	A5:0	Without heating circuit pump logic function.
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF"; see the following table.

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	$AT > RT_{set} + 5\ K$
2	$AT > RT_{set} + 4\ K$
3	$AT > RT_{set} + 3\ K$
4	$AT > RT_{set} + 2\ K$
5	$AT > RT_{set} + 1\ K$
6	$AT > RT_{set}$
7 to 15	$AT > RT_{set} - 1\ K$ to $AT > RT_{set} - 9\ K$

Coding in the factory set condition		Possible change	
Extended economy function mixing valve			
A7:0	Only for heating circuits with mixing valve: Without mixing valve economy function.	A7:1	With mixing valve economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": - If the mixing valve has been closed for longer than 20 min. Heating circuit pump "ON": - If the mixing valve changes to control function. - If there is a risk of frost.
Pump idle time, transition reduced mode. Operation			
A9:7	With pump idle time (heating circuit pump "OFF"). (See function description on page 51).	A9:0	Without pump idle time.
		A9:1 to A9:15	With pump idle time; adjustable from 1 to 15. 1: short idle period 15: long idle period

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
Extended economy function mixing valve			
Weather-compensated/room temperature hook-up			
B0:0	With remote control:*2 Heating mode/reduced mode: weather-compensated.	B0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		B0:2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		B0:3	Heating mode/reduced mode: with room temperature hook-up
Economy function room temperature			
B5:0	With remote control:*2 No room temperature dependent heating circuit pump logic function.	B5:1 to B5:8	Heating circuit pump logic function, see the following table.

*2 Only change the code for the system circuit A1 for boilers without lower temperature limit or for the heating circuits with mixing valve if a remote control is connected to them.

	With heating circuit pump logic function:	
Parameter address B5:...	**Heating circuit pump "OFF"**	**Heating circuit pump "ON"**
1	$RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	$RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	$RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	$RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	$RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	$RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	$RT_{actual} > RT_{set} - 1$ K	$RT_{actual} < RT_{set} - 2$ K
8	$RT_{actual} > RT_{set} - 2$ K	$RT_{actual} < RT_{set} - 3$ K

Coding in the factory set condition		Possible change	
Min. supply temperature heating circuit			
C5:20	Electronic minimum supply temperature limit 68° F (20° C) (only in operation at standard room temperature).	C5:1 to C5:127	Minimum limit adjustable from 32 to 260° F (1 to 127° C) (limited by boiler-specific parameters).
Max. supply temperature heating circuit			
C6:75	Electronic maximum supply temperature limit set to 167° F (75° C).	C6:10 to C6:127	Maximum limit adjustable from 50 to 260° F (10 to 127° C) (limited by boiler-specific parameters).
Heating program - changeover			
D5:0	With external heating program changeover (observe setting for coding addresses "5D", "5E" and "5F" in the "General" group). Heating program switches to "Constant central heating with reduced room temperature" or "Standby mode" (subject to the settings of the set reduced room temperature).	D5:1	The heating program changes to "Constant operation with standard room temperature".
External heating program changeover to heating circuit			
D8:0	No heating program changeover via extension EA1.	D8:1	Heating program changeover via input DE1 at extension EA1.
		D8:2	Heating program changeover via input DE2 at extension EA1.
		D8:3	Heating program changeover via input DE3 at extension EA1.

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
Slab curing function (Not used)			
F1:0	Slab curing function disabled. **(Not used)**	F1:1 to F1:6	Only for heating circuits with mixing valve: Slab curing function adjustable in accordance with 6 optional temperature/time profiles. **(Not used)**
		F1:15	Constant supply temperature 68° F (20° C).
Party mode time limit			
F2:8	Time limit for party mode or external heating program changeover via pushbutton: 8 h*1. **Note:** Observe settings of coding addresses "5D", "5E", "5F" in the "General" group, as well as "D5" and "D8" in the "Heating circuit..." group.	F2:0	No time limit*1.
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h*1.
Start temperature raising			
F8:-5	Temperature limit for raising reduced mode 23° F (-5° C); see example on page 67. Observe the setting of coding address "A3".	F8:+10 to F8:-60	Temperature limit adjustable from +50 to -76° F (+10 to -60° C).
		F8:-61	Function disabled.
End temperature raising			
F9:-14	Temperature limit for raising the reduced set room temperature 7° F (-14° C); see example on page 67.	F9:+10 to F9:-60	Limit for raising the set room temperature to the value selected for standard mode adjustable from +50 to -76° F (+10 to -60° C).
Set supply temperature increase			
FA:20	Raising the set boiler water or supply temperature by 20% when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 67.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50%.
Duration set supply temperature increase			
FB:30	Duration for raising the set boiler water or supply temperature (see coding address "FA") 60 min. See example on page 67.	FB:0 to FB:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min.

*1 Party mode ends automatically in the "Heating and DHW" heating program when the system changes over to operation with standard room temperature.

Calling up Coding Level 2

Note:

- In coding level 2, all codes are accessible, including the codes from coding level 1.
- Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.
- Heating systems with one system circuit and one or two heating circuits with mixing valve:
  In the following, the system circuit is designated "Heating circuit 1" and the heating circuits with mixing valve as "Heating circuit 2" or "Heating circuit 3".
  If the heating circuits were given individual designations, the selected designation and "HC1", "HC2" or "HC3" appear instead.

1. Press OK and ☰ simultaneously for approx. 4 sec.
2. Press OK and ⮌ simultaneously for approx. 4 sec.
3. "Coding level 2"
4. Select group of required coding address:
   - "General"
   - "Boiler"
   - "DHW"
   - "Solar"
   - "Heating circuit 1/2/3"
   - "All codes std device" In this group, all coding addresses (except the coding addresses from the "Solar" group) are displayed in ascending order.
5. Select coding address.
6. Select value according to the following tables and confirm with "OK".
7. If you want to reset all codes to their factory set condition:
   Select "Standard setting" in "Coding level 2".
   Note: This also resets codes from coding level 1.

"General" Group

Coding

Coding in the factory set condition		Possible change	
00:1	One system circuit A1 (heating circuit 1), without DHW heating.	00:2 to 00:10	For system schemes, see the following table.

Coding

Value address 00: ...	Description
2	One system circuit A1 (heating circuit 1) with DHW heating (automatic recognition)
3	One heating circuit with mixing valve M2 (heating circuit 2) without DHW heating
4	One heating circuit with mixing valve M2 (heating circuit 2) with DHW heating
5	One system circuit A1 (heating circuit 1) One heating circuit with mixing valve M2 (heating circuit 2) without DHW heating (automatic recognition)
6	One system circuit A1 (heating circuit 1) One heating circuit with mixing valve M2 (heating circuit 2) with DHW heating (automatic recognition).
7	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating
8	Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating
9	One system circuit A1 (heating circuit 1) Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) without DHW heating (automatic recognition).
10	One system circuit A1 (heating circuit 1) Two heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3) with DHW heating (automatic recognition).

Coding in the factory set condition		Possible change	
12:5	With extension EA1: DHW recirculation pump runtime for brief operation: 5 min.	12:1 to 12:60	Runtime adjustable from 1 to 60 min.
1E:0	With extension EA1 (analogue input 0-10 V): Temperature demand from 32 to 212° F (0 to 100° C): 1 V ≙ 50° F (10° C) 10 V ≙ 212° F (100° C)	1E:1	Temperature demand from 86 to 248° F (30 to 120° C): 1 V ≙ 86° F (30° C) 10 V ≙ 248° F (120° C)
2E:0	Do not adjust.	-	-
2F:0	Do not adjust.	-	-
40:125	3-way mixing valve servomotor runtime in conjunction with permanent return temperature control at plug [52]A1 125 sec.	40:5 to 40:199	Runtime adjustable from 5 to 199 sec.
4A:0	Sensor [17]A not available.	4A:1	Sensor [17]A available (e.g. return temperature sensor T1); automatic recognition.
4B:0	Sensor [17]B not available.	4B:1	Sensor [17]B available (e.g. return temperature sensor T2); automatic recognition.
4C:0	Connection at plug [20]A1: Heating circuit pump.	4C:1	Primary pump, primary store system.

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
4D:1	Connection at plug 29: Shunt pump.	4D:0	Distribution pump.
4E:1	Connection at plug 52A1: 3-way mixing valve for return temperature control.	4E:2	Motor for 3-way mixing valve, primary store system.
4F:5	Run-on time, shunt or distribution pump 5 min.	4F:0	No pump run-on.
		4F:1 to 4F:60	Run-on time adjustable from 1 to 60 min.
54:0	Without solar thermal system.	54:1	With Vitosolic 100; automatic recognition.
		54:2	With Vitosolic 200; automatic recognition.
		54:3	With solar control module, type SM1, without auxiliary function; automatic recognition.
		54:4	With solar control module, type SM1, with auxiliary function, e.g. central heating backup; automatic recognition.
5B:0	Without extension EA1.	5B:1	With extension EA1; automatic recognition.
5C:0	Function output 157 at extension EA1: Central fault message.	5C:1	Accessories pump.
		5C:2	No function.
		5C:3	Heating circuit pump A1 is switched to low speed (reduced mode).
		5C:4	Heating circuit pump M2 is switched to low speed (reduced mode).
		5C:5	Heating circuit pump M3 is switched to low speed (reduced mode).
5D:0	Function input DE1 at extension EA1: No function.	5D:1	Heating program changeover.
		5D:2	External demand with minimum set supply temperature. Selection of set value in coding address "9B" in the "General" group.
		5D:3	External blocking.
		5D:4	External blocking with fault message.
		5D:5	Fault message input.
		5D:6	Brief operation, DHW recirculation pump (pushbutton function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.
5E:0	Function input DE2 at extension EA1: No function.	5E:1	Heating program changeover.
		5E:2	External demand with minimum set supply temperature. Selection of set value in coding address "9B" in the "General" group.
		5E:3	External blocking.
		5E:4	External blocking with fault message.
		5E:5	Fault message input.
		5E:6	Brief operation, DHW recirculation pump (pushbutton function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.

5693 973 - 05

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
5F:0	Function input DE3 at extension EA1: No function.	5F:1	Heating program changeover.
		5F:2	External demand with minimum set supply temperature. Selection of set value in coding address "9B" in the "General" group.
		5F:3	External blocking.
		5F:4	External blocking with fault message.
		5F:5	Fault message input.
		5F:6	Brief operation, DHW recirculation pump (pushbutton function). Setting of runtime for DHW recirculation pump in coding address "12" in the "General" group.
6E:50	No display correction of the outside temperature.	6E:0 to 6E:49	Display correction −5 K to Display correction −0.1 K
		6E:51 to 6E:99	Display correction +0.1 K to Display correction +4.9 K
76:0	Without LON communication module.	76:1	With LON communication module (automatic recognition).
77:5	LON participant number.	77:1 to 77:99	LON participant number, adjustable from 1 to 99: 1 – 4 = Boiler control unit 5 = Cascade control unit 10 – 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom
78:1	LON communication enabled.	78:0	LON communication disabled.
79:1	With LON communication module: Control unit is fault manager.	79:0	Control unit is not fault manager.
7A:0	Without central control of heating circuits.	7A:1	With central control (see page 66): System circuit A1 (heating circuit 1).
		7A:2	Heating circuit with mixing valve M2 (heating circuit 2).
		7A:3	Heating circuit with mixing valve M3 (heating circuit 3).
7B:1	With LON communication module: Control unit transmits the time.	7B:0	Time not transmitted.
7F:1	Detached house.	7F:0	Apartment building. Separate adjustment of holiday program and time program for DHW heating possible.
80:6	If a fault occurs for at least 30 s, a fault message is displayed.	80:0	Immediate fault message.
		80:2 to 80:199	The minimum fault duration until a fault message is issued is adjustable from 10 to 995 sec; 1 step ≙ 5 sec.
81:1	Automatic summer/wintertime changeover.	81:0	Manual summer/wintertime changeover.
		81:2	Use of the radio clock receiver (automatic recognition).
		81:3	With LON communication module: The control unit receives the time.
82:3	Summer time starts: March	82:1 to 82:12	January to December
83:5	Summer time starts: Week 5 of the selected month.	83:1 to 83:5	Week 1 to week 5 of the selected month

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
84:7	Summer time starts: Last Sunday of the selected month.	84:1 to 84:7	Monday to Sunday
85:10	Wintertime starts: October.	85:1 to 85:12	January to December
86:5	Wintertime starts: Week 5 of the selected month.	86:1 to 86:5	Week 1 to week 5 of the selected month
87:7	Summer time starts: Last Sunday of the selected month.	87:1 to 87:7	Monday to Sunday
88:0	Temperature displayed in °C (Celsius).	88:1	Temperature displayed in °F (Fahrenheit).
8A:175	Do not adjust.	-	-
8F:0	Operation in the standard menu and extended menu enabled. **Note:** The relevant code is only enabled when you exit the service level (see page 51).	8F:1	Operation in the standard menu and extended menu blocked.
		8F:2	Operation enabled in the standard menu; blocked in the extended menu.
90:128	Time constant for calculating adjusted outside temperature 21.3 h.	90:1 to 90:199	Fast (low values) or slow (high values) matching of the supply temperature, subject to the set value when the outside temperature changes. 1 step ≙ 10 min.
91:0	Connection at terminals 1 and 2 in plug [143] disabled (external heating program changeover) (see page 36).	91:1	Contact affects the following heating circuits: System circuit A1 (heating circuit 1).
		91:2	Heating circuit with mixing valve M2 (heating circuit 2).
		91:3	Heating circuits without mixing valve A1 (heating circuit 1) and heating circuit with mixing valve M2 (heating circuit 2).
		91:4	Heating circuit with mixing valve M3 (heating circuit 3).
		91:5	Heating circuits without mixing valve A1 (heating circuit 1) and heating circuit with mixing valve M3 (heating circuit 3).
		91:6	Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		91:7	System circuit A1 (heating circuit 1) and heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
96:1	With extension for heating circuits 2 and 3 with mixing valve.	96:0	Without extension for heating circuits 2 and 3 with mixing valve.
97:2	With LON communication module: The control unit sends the outside temperature to the Vitotronic 200-H.	97:0	The outside temperature of the sensor connected to the control unit is only utilized internally.
		97:1	The control unit receives the outside temperature from the Vitotronic 200-H.
98:1	With LON communication module: Viessmann system number (in conjunction with monitoring several systems via Vitocom LAN1).	98:1 to 98:5	System number adjustable from 1 to 5.

"General" Group *(continued)*

Coding in the factory set condition		Possible change	
99:0	Connection at terminals 2 and 3 in plug [143] disabled (external blocking/ external "Mixing valve closed") (see page 36).	99:1	No function.
		99:2	External "Mixing valve closed" Heating circuit with mixing valve M2 (heating circuit 2).
		99:3	No function.
		99:4	External "Mixing valve closed" Heating circuit with mixing valve M3 (heating circuit 3).
		99:5	No function.
		99:6	External "Mixing valve closed" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		99:7	No function.
		99:8	External blocking.
		99:9	No function.
		99:10	External blocking/external "Mixing valve closed" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		99:11	No function.
		99:12	External blocking/external "Mixing valve closed" Heating circuit with mixing valve M3 (heating circuit 3).
		99:13	No function.
		99:14	External blocking/external "Mixing valve closed" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		99:15	No function.
9A:0	Connection at terminals 1 and 2 in plug [143] disabled (external "Mixing valve open") (see page 36).	9A:1	No function.
		9A:2	External "Mixing valve open" Heating circuit with mixing valve M2 (heating circuit 2).
		9A:3	No function.
		9A:4	External "Mixing valve open" Heating circuit with mixing valve M3 (heating circuit 3).
		9A:5	No function.
		9A:6	External "Mixing valve open" Heating circuits with mixing valve M2 (heating circuit 2) and M3 (heating circuit 3).
		9A:7	No function.
9B:70	Set supply temperature for external demand 158° F (70° C).	9B:0 to 9B:127	Set value adjustable from 32 to 260° F (0 to 127° C).
9C:20	With LON communication module: Monitoring LON participants. If there is no response from a participant after 20 min., the values specified inside the control unit are used. Only then will a fault message be issued.	9C:0	No monitoring.
		9C:5 to 9C:60	Time adjustable from 5 to 60 min.
9F:8	Differential temperature 8 K; only in conjunction with heating circuits with mixing valve M2 and M3.	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K.

"Cascade" Group

Coding

Coding in the factory set condition		Possible change	
35:4	4 boilers connected to the Vitotronic 300-K.	35:1 to 35:4	1 to 4 boilers connected to the Vitotronic 300-K.
36:0	Electronic minimum system supply temperature limit set to 32° F (0° C).	36:1 to 36:127	Minimum limit adjustable from 32 to 260° F (0 to 127° C).
37:80	Electronic maximum system supply temperature limit set to 176° F (80° C).	37:20 to 37:127	Maximum limit adjustable from 68 to 260° F (20 to 127° C). **Note:** Value must not be higher than the lowest value of coding address "06" in the "Boiler" group of every Vitotronic 300, GW5B.
38:0	No lead boiler or boiler sequence changeover; see function description in chapter "Cascade control".	38:1	Lead boiler changeover: Every first day of the month, the boiler with the shortest number of hours run by its burner becomes the lead boiler.
		38:2 to 38:200	Lead boiler changeover after 200 to 20,000 hours run. 1 step ≙ 100 hours run
39:0	No permanent lead boiler.	39:1 to 39:4	Boiler 1, 2, 3 or 4 is the permanent lead boiler.
3A:0	No permanent last boiler.	3A:1 to 3A:4	Boiler 1, 2, 3 or 4 is permanently the last boiler.
3B:1	Stand-alone parallel boiler circuit: With supply temperature sensor (see page 62).	3B:0	Stand-alone parallel boiler circuit: Without supply temperature sensor (see page 62).
		3B:2	Stand-alone serial boiler circuit: Without supply temperature sensor (see page 62).
		3B:3	Stand-alone serial boiler circuit: With supply temperature sensor (see page 62).
		3B:4	Sequential control with supply temperature sensor (see page 62).
3C:2	3C:2 Conventional strategy 2 (see page 64).	3C:0	Condensing strategy (see page 63).
		3C:1	Conventional strategy 1 (see page 64).
3D:1	Output statement for condensing strategy and conventional strategy 1.	3D:0	No output statement. **Note:** Vitotronic 300-K regulates only according to conventional strategy 2.
3E:0	Distribution pump only runs when there is a heat demand.	3E:1	Distribution pump always runs; shutdown through "External blocking" signal.
3F:0	Without DHW tank priority control for distribution pump.	3F:1	With DHW tank priority control for distribution pump.
41:31	No ECO threshold boiler 1.	41: − 30 to 41: + 30	ECO threshold boiler 1 adjustable from -22 to + 86° F (− 30 to + 30° C).
42:31	No ECO threshold boiler 2.	42: − 30 to 42: + 30	ECO threshold boiler 2 adjustable from -22 to + 86° F (− 30 to + 30° C).

"Cascade" Group *(continued)*

Coding in the factory set condition		Possible change	
43:31	No ECO threshold boiler 3.	43:–30 to 43:+30	ECO threshold boiler 3 adjustable from -22 to +86° F (–30 to +30° C).
44:31	No ECO threshold boiler 4.	44:–30 to 44:+30	ECO threshold boiler 4 adjustable from -22 to +86° F (–30 to +30° C).
45:60	Start integral threshold set to 60 K x min.	45:1 to 45:255	Start integral threshold adjustable from 1 to 255 K x min. **Note:** If the threshold is exceeded, one boiler or one burner stage is switched on.
46:40	Stop integral threshold set to 40 K x min.	46:1 to 46:255	Stop integral threshold adjustable from 1 to 255 K x min. **Note:** If the threshold is exceeded, one boiler or one burner stage is switched off.
47:15	Stop differential set to 15 K.	47:2 to 47:30	Stop differential adjustable from 2 to 30 K. **Note:** One boiler or one burner stage will be switched off if the actual supply temperature exceeds the set supply temperature by this value.
48:35	Do not adjust.	--	--
49:40	Do not adjust.	--	--

"DHW" Group

Coding in the factory set condition		Possible change	
55:0	DHW tank heating, hysteresis ± 2.5 K.	55:1	Adaptive DHW tank heating enabled.
		55:2	DHW tank temperature control with 2 DHW tank temperature sensors.
		55:3	DHW tank temperature control, primary store system.
56:0	Set DHW temperature adjustable from 50 to 140° F (10 to 60° C).	56:1	Set DHW temperature adjustable from 50 to 194° F (10 to 95° C). **Note:** Observe the max. permissible DHW temperature. Adjust the temperature controller "⏲".
58:0	Without auxiliary function for DHW heating.	58:10 to 58:60	Input of a second set DHW temperature, adjustable from 50 to 194° F (10 to 95° C). (observe coding addresses "56" and "63").
59:0	DHW tank heating: Set start point –2.5 K Set stop point +2.5 K	59:1 to 59:10	Start point adjustable from 1 to 10 K below set value.
5A:0	For DHW heating: The set supply temperature is determined by the highest system supply temperature demand.	5A:1	For DHW heating: The set supply temperature is determined by the DHW tank supply temperature demand.
60:20	During DHW heating, the common supply temperature is max. 20 K higher than the set DHW temperature.	60:10 to 60:50	The differential between the common supply temperature and the set DHW temperature is adjustable from 10 to 50 K.
61:1	The circulation pump for DHW tank heating is started immediately.	61:0	The circulation pump for DHW tank heating is started depending on the boiler water temperature.

"DHW" Group *(continued)*

Coding in the factory set condition		Possible change	
62:10	Circulation pump with a run-on time after DHW tank heating of max. 10 min.	62:0	Circulation pump without run-on.
		62:1 to 62:15	Run-on time adjustable from 1 to 15 min.
64:2	During party mode and after external changeover to constant operation with the standard room temperature: Constant DHW heating enabled and DHW recirculation pump "ON".	64:0	No DHW heating, DHW recirculation pump "OFF".
		64:1	DHW heating and DHW recirculation pump according to time program.
66:4	Input of the set DHW temperature: At the control unit programming unit and all installed Vitotrol 300A remote controls.	66:0	At the control unit programming unit.
		66:1	At the control unit programming unit and remote control system circuit A1 (heating circuit).
		66:2	At the control unit programming unit and remote control heating circuit with mixing valve M2 (heating circuit 2).
		66:3	At the control unit programming unit and remote control heating circuit with mixing valve M3 (heating circuit 3).
		66:5	At the remote control system circuit A1 (heating circuit 1).
		66:6	At the remote control heating circuit with mixing valve M2 (heating circuit 2).
		66:7	At the remote control heating circuit with mixing valve M3 (heating circuit 3).
67:40	For solar DHW heating: Set DHW temperature 104° F (40° C). Reheating is suppressed above the selected set temperature (DHW heating by the boiler only if solar energy is not sufficient).	67:0	No third set value.
		67:10 to 67:95	Set DHW temperature adjustable from 50 to 194° F (10 to 95° C). (limited by boiler specific parameters). Observe the setting of coding address "56".
68:8	With 2 DHW tank temperature sensors (code "55:2"): DHW tank heating stop point at set value x 0.8.	68:2 to 68:10	Factor adjustable from 0.2 to 1; 1 step ≙ 0.1
69:7	With 2 DHW tank temperature sensors (code "55:2"): DHW tank heating start point at set value x 0.7.	69:1 to 69:9	Factor adjustable from 0.1 to 0.9; 1 step ≙ 0.1
6A:75	Runtime, servomotor, mixing valve, heat exchanger set, Vitotrans 222, (80 and 120 kW): 75 sec.	6A:10 to 6A:255	For heat exchanger set Vitotrans 222 (240 kW): set 113 sec. Runtime adjustable from 10 to 255 sec.
70:0	DHW recirculation pump "ON" according to time program when DHW heating is enabled.	70:1	DHW recirculation pump "ON" according to time program.
71:0	DHW recirculation pump: "ON" according to time program.	71:1	"OFF" during DHW heating to the first set value.
		71:2	"ON" during DHW heating to the first set value.
72:0	DHW recirculation pump: "ON" according to time program.	72:1	"OFF" during DHW heating to the second set value.
		72:2	"ON" during DHW heating to the second set value.
73:0	DHW recirculation pump: "ON" according to time program.	73:1 to 73:6	"ON" from once per hour for 5 min. up to 6 times per hour for 5 min. during the time program.
		73:7	Constantly "ON".
75:0	DHW recirculation pump "ON" during economy mode according to time program.	75:1	DHW recirculation pump "OFF" during economy mode.

"Solar" Group

Only in conjunction with solar control module, type SM1.

Coding

Coding in the factory set condition		Possible change	
00:8	The solar circuit pump starts when the collector temperature exceeds the actual DHW temperature by 8 K.	00:2 to 00:30	The differential between the actual DHW temperature and the start point for the solar circuit pump is adjustable from 2 to 30 K.
01:4	The solar circuit pump stops when the differential between the collector temperature and the actual DHW temperature is less than 4 K.	01:1 to 01:29	The differential between the actual DHW temperature and the stop point for the solar circuit pump is adjustable from 1 to 29 K.
02:0	Solar circuit pump (multi stage) without speed control by solar control module SM1.	02:1	Solar circuit pump (multi stage) is speed-controlled with wave pack control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
03:10	The temperature differential between the collector temperature and actual DHW temperature is regulated to 10 K.	03:5 to 03:20	The differential temperature control between the collector temperature and actual DHW temperature is adjustable from 5 to 20 K.
04:4	Controller amplification of the speed control 4%/K.	04:1 to 04:10	Controller amplification adjustable from 1 to 10%/K.
05:10	Minimum speed of the solar circuit pump 10% of the maximum speed.	05:2 to 05:100	Minimum speed of the solar circuit pump is adjustable from 2 to 100%.
06:75	Maximum speed of the solar circuit pump 75% of the maximum possible speed.	06:1 to 06:100	Maximum speed of the solar circuit pump is adjustable from 1 to 100%.
07:0	Interval function of the solar circuit pump switched off.	07:1	Interval function of the solar circuit pump switched on. To capture the collector temperature more accurately, the solar circuit pump starts for short cycles.
08:60	The solar circuit pump stops when the actual DHW temperature reaches the maximum DHW tank temperature 140° F (60° C).	08:10 to 08:90	The maximum DHW tank temperature is adjustable from 50 to 194° F (10 to 90° C).
09:130	The solar circuit pump stops if the collector temperature reaches 266° F (130° C) (maximum collector temperature to protect the system components).	09:20 to 09:200	The temperature is adjustable from 68 to 392° F (20 to 200° C).
0A:5	To protect system components and heat transfer medium: The speed of the solar circuit pump is reduced if the actual DHW tank temperature is 5 K below the maximum DHW tank temperature.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Value for stagnation time reduction is adjustable from 1 to 40 K.
0B:0	Frost protection function for solar circuit switched off.	0B:1	Frost protection function for solar circuit switched on (not required with Viessmann heat transfer medium).
0C:1	Delta T monitoring switched on. No flow rate captured in the solar circuit, or flow rate too low.	0C:0	Delta T monitoring switched off.

"Solar" Group *(continued)*

Coding in the factory set condition		Possible change	
0D:1	Night circulation monitoring switched on. Unintentional flow rate is captured in the solar circuit (e.g. at night).	0D:0	Night circulation monitoring switched off.
0E:1	Calculation of solar yield with Viessmann heat transfer medium.	0E:2	Calculation of solar yield with water as heat transfer medium (never adjust, as operation is only possible with Viessmann heat transfer medium).
		0E:0	Calculation of solar yield switched off.
0F:70	The solar circuit flow rate at maximum pump speed is 7 L/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min. 1 step ≙ 0.1 l/min
10:0	Target temperature control switched off (see coding address "11").	10:1	Target temperature control switched on.
11:50	Set solar DHW temperature 122° F (50° C). - Target temperature control switched on (code "10:1"): Temperature at which the solar heated water in the DHW tank is to be stratified. - Extended control functions set to heat two DHW tanks (code "20:8"): The second DHW tank is heated when one DHW tank reaches its set DHW temperature.	11:10 to 11:90	The set solar DHW temperature is adjustable from 50 to 194° F (10 to 90° C).
12:10	Minimum collector temperature 50° F (10° C). The solar circuit pump will only start when the set minimum collector temperature is exceeded.	12:0	Minimum collector temperature function disabled.
		12:1 to 12:90	The minimum collector temperature is adjustable from 1
20:0	No extended control functions enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor
		20:9	Solar heating of two DHW tanks.
22:8	Start temperature differential for central heating backup: 8 K. Switching output [22] is switched on when the temperature at sensor [7] exceeds the temperature at sensor [10] by the selected value.	22:2 to 22:30	Start temperature differential for central heating backup is adjustable from 2 to 30 K.

"Solar" Group *(continued)*

Coding in the factory set condition		Possible change	
23:4	Stop temperature differential for central heating backup: 4 K. Switching output [22] is switched off when the temperature at sensor [7] falls below the stop point. The stop point is the sum of the temperature at sensor [10] and the value selected for the stop temperature differential.	23:2 to 23:30	Stop temperature differential for central heating backup is adjustable from 1 to 29 K.
24:40	Start temperature for thermostat function 104° F (40° C). Start temperature for thermostat function ≤ stop temperature for thermostat function: Thermostat function, e.g. for reheating. Switching output [22] is switched on when the temperature at sensor [7] falls below the start temperature for the thermostat function. Start temperature for thermostat function > stop temperature for thermostat function: Thermostat function, e.g. for utilizing excess heat. Switching output [22] is switched on when the temperature at sensor [7] exceeds the start temperature for the thermostat function.	24:0 to 24:100	Start temperature for thermostat function is adjustable from 0 to 100 K.
25:50	Stop temperature for thermostat function 122° F (50° C). Start temperature for thermostat function ≤ stop temperature for thermostat function: Thermostat function e.g. for reheating. Switching output [22] is switched off when the temperature at sensor [7] exceeds the start temperature for the thermostat function. Start temperature for thermostat function > stop temperature for thermostat function: Thermostat function e.g. for utilizing excess heat. Switching output [22] is switched off when the temperature at sensor [7] falls below the start temperature for the thermostat function.	25:0 to 25:100	Start temperature for thermostat function is adjustable from 0 to 100 K.
26:1	Priority for DHW tank 1 – with alternate heating. Only when setting code "20:8"	26:0	Priority for DHW tank 1 – without alternate heating
		26:2	Priority for DHW tank 2 – without alternate heating.
		26:3	Priority for DHW tank 2 – with alternate heating.
		26:4	Alternate heating without priority for one of the DHW tanks.
27:15	Alternate heating time 15 min. The DHW tank without priority is heated at most for the duration of the set alternate heating time if the DHW tank with priority is heated up.	27:5 to 27:60	The alternate heating time is adjustable from 5 to 60 min.
28:3	Alternate pause time 3 min. After the selected alternate heating time for the DHW tank without priority has expired, the rise in collector temperature is captured during the alternate pause time.	28:1 to 28:60	The alternate pause time is adjustable from 1 to 60 min.

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group

Coding

Coding in the factory set condition		Possible change	
A0:0	Without remote control.	A0:1	With Vitotrol 200A; automatic recognition.
		A0:2	A0:2 With Vitotrol 300A or Vitohome 300; automatic recognition.
A1:0	Only with Vitotrol 200A: All possible settings at the remote control can be accessed.	A1:1	Only party mode can be set at the remote control.
A2:2	DHW tank priority applicable to heating circuit pump and mixing valve.	A2:0	Without DHW tank priority applicable to heating circuit pump and mixing valve.
		A2:1	DHW tank priority applies only to the mixing valves.
A3:2	Outside temperature below 34° F (1° C): Heating circuit pump "ON". Outside temperature above 37° F (3° C): Heating circuit pump "OFF".	A3:-9 to A3:15	Heating circuit pump "ON/ OFF" (see the following table).

Note: If a value below 34° F (1° C) is selected, there is a risk that pipes outside the thermal envelope of the building could freeze up. The standby mode in particular should be taken into consideration, e.g. during holidays.

Parameter Address A3:...	Heating circuit pump	
	"ON"	"OFF"
-9	14° F (-10° C)	18° F (-8° C)
-8	16° F (-9° C)	19° F (-7° C)
-7	18° F (-8° C)	21° F (-6° C)
-6	19° F (-7° C)	23° F (-5° C)
-5	21° F (-6° C)	25° F (-4° C)
-4	23° F (-5° C)	27° F (-3° C)
-3	25° F (-4° C)	28° F (-2° C)
-2	27° F (-3° C)	30° F (-1° C)
-1	28° F (-2° C)	32° F (0° C)
0	30° F (-1° C)	34° F (1° C)
1	32° F (0° C)	36° F (2° C)
2 to 15	34° F (1° C) to 57° F (14° C)	37° F (3° C) to 61° F (16° C)

Coding in the factory set condition		Possible change	
A4:0	With frost protection.	A4:1	No frost protection; this setting is only possible if code "A3:-9" has been selected. **Note:** Observe information regarding coding address "A3".
A5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) AT > RT_{set} + 1 K.	A5:0	Without heating circuit pump logic function.
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF"; see the following table.

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	AT > RT_{set} + 5 K
2	AT > RT_{set} + 4 K
3	AT > RT_{set} + 3 K
4	AT > RT_{set} + 2 K
5	AT > RT_{set} + 1 K
6	AT > RT_{set}
7 to 15	AT > RT_{set} - 1 K to AT > RT_{set} - 9 K

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
A6:36	Extended economy control disabled.	A6:5 to A6:35	Extended economy control enabled, i.e. the burner and heating circuit pump will be stopped and the mixing valve closed at a variable value, adjustable between 41 to 95° F (5 and 35° C) plus 34° F (1° C). The base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant, which takes the cooling down of an average building into consideration.
A7:0	Only for heating circuits with mixing valve: Without mixing valve economy function.	A7:1	With mixing valve economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": - If the mixing valve has been closed for longer than 12 min. Heating circuit pump "ON": - If the mixing valve changes to control function. - If there is a risk of frost.
A9:7	With pump idle time (heating circuit pump "OFF") (See function description on page 51).	A9:0	Without pump idle time.
		A9:1 to A9:15	With pump idle time; adjustable from 1 to 15. 1: short idle period 15: long idle period
AA:2	With output reduction by temperature sensor 17A.	AA:0	Without output reduction.
		AA:1	No function.
B0:0	With remote control:*2 Heating mode/reduced mode: weather-compensated.	B0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		B0:2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		B0:3	Heating mode/reduced mode: with room temperature hook-up
B2:8	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 Room influence factor 8.	B2:0	Without room influence.
		B2:1 to B2:64	Room influence factor adjustable from 1 to 64.
B5:0	With remote control:*2 No room temperature dependent heating circuit pump logic function.	B5:1 to B5:8	Heating circuit pump logic function, see the following table.

*2 Only change the code for the system circuit A1 for boilers without lower temperature limit or for the heating circuits with mixing valve if a remote control is connected to them.

Parameter address B5:...	With heating circuit pump logic function:	
	Heating circuit pump "OFF"	Heating circuit pump "ON"
1	1 $RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	2 $RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	3 $RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	4 $RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	5 $RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	6 $RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	7 $RT_{actual} > RT_{set}$	-1 K $RT_{actual} < RT_{set} - 2$ K
8	8 $RT_{actual} > RT_{set}$	-2 K $RT_{actual} < RT_{set} - 3$ K

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
B6:0	With remote control:*2 Without quick heat-up/ quick setback.	B6:1	With quick heat-up/quick setback (see function description on page 65).
B7:0	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 Without start optimization.	B7:1	With start optimization, max. heat-up time delay 2 h 30 min.
		B7:2	With start optimization, max. heat-up time delay 15 h 50 min.
B8:10	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 Heat-up gradient start optimization 10 min/K.	B8:11 to B8:255	Heat-up gradient adjustable from 11 to 255 min/K.
B9:0	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 Without learning start optimization.	B9:1	With learning start optimization.
C0:0	With remote control:*2 Without stop optimization.	C0:1	With stop optimization, max. setback time delay 1 h.
		C0:2	With stop optimization, max. setback time delay 2 h.
C1:0	With remote control:*2 Without stop optimization.	C1:1 to C1:12	With stop optimization of setback time delay, adjustable from 10 to 120 min; 1 step ≙ 10 min
C2:0	With remote control:*2 Without learning stop optimization.	C2:1	With learning stop optimization.
C3:125	Only for heating circuits with mixing valve: Mixing valve runtime 125 sec.	C3:10 to C3:255	Runtime adjustable from 10 to 255 sec.
C4:1	System dynamics: Mixing valve control characteristics	C4:0 to C4:3	Controller responds too quickly (cycles between "Open" and "Closed"): select a lower value. Controller responds too slowly (temperature is not held sufficiently): select a higher value.
C5:20	Electronic minimum supply temperature limit 68° F (20° C) (only in operation at standard room temperature).	C5:1 to C5:127	Minimum limit adjustable from 34 to 260° F (1 to 127° C).
C6:75	Electronic maximum supply temperature limit set to 167° F (75° C).	C6:10 to C6:127	Maximum limit adjustable from 50 to 260° F (10 to 127° C).
C8:31	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*2 No room influence limit.	C8:1 to C8:30	Room influence limit adjustable from 1 to 30 K.
D5:0	With external heating program changeover (observe setting of coding address "5D", "5E" and "5F" and "91" in the "General" group): Heating program switches to "Constant central heating with reduced room temperature" or "Standby mode" (subject to the settings of the set reduced room temperature).	D5:1	The heating program changes to "Constant operation with standard room temperature".

*2 Only change the code for the system circuit A1 for boilers without lower temperature limit or for the heating circuits with mixing valve if a remote control is connected to them.

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
D8:0	No heating program changeover via extension EA1	D8:1	Heating program changeover via input DE1 at extension EA1.
		D8:2	Heating program changeover via input DE2 at extension
		D8:3	Heating program changeover via input DE3 at extension
E1:1	With remote control: Set day temperature adjustable at the remote control unit from 50 to 86° F (10 to 30° C).	E1:0	Set day temperature adjustable from 37 to 73° F (3 to 23° C).
		E1:2	Set day temperature adjustable from 63 to 99° F (17 to 37° C).
E2:50	50 With remote control: No display correction of the actual room temperature.	E2:0 to E2:49	Display correction –5 K to Display correction –0.1 K
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K
F1:0	Slab curing function disabled. **(Not used)**	F1:1 to F1:6	Only for heating circuits with mixing valve: Slab curing function adjustable in accordance with 6 optional temperature/time profiles. **(Not used)**
		F1:15	Constant supply temperature 68° F (20° C).
F2:8	Time limit for party mode or external heating program changeover via pushbutton: 8 h*1. **Note:** Observe settings of coding addresses "5D", "5E", "5F" in the "General" group, as well as "D5" and "D8" in the "Heating circuit..." group.	F2:0	No time limit*1.
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h*1.
F8:-5	Temperature limit for raising reduced mode 23° F (-5° C); see example on page 67. Observe the setting of coding address "A3".	F8:+10 to F8:-60	Temperature limit adjustable from +50 to -76° F (+10 to -60° C).
		F8:-61	Function disabled.
F9:-14	Temperature limit for raising the reduced set room temperature 7° F (-14° C); see example on page 67.	F9:+10 to F9:-60	Limit for raising the set room temperature to the value selected for standard mode adjustable from +50 to -76° F (+10 to -60° C).
FA:20	Raising the set boiler water or supply temperature by 20% when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 68.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %.
FB:30	Duration for raising the set boiler water or supply temperature (see coding address "FA") 60 min. See example on page 68	FB:0 to FB:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min.

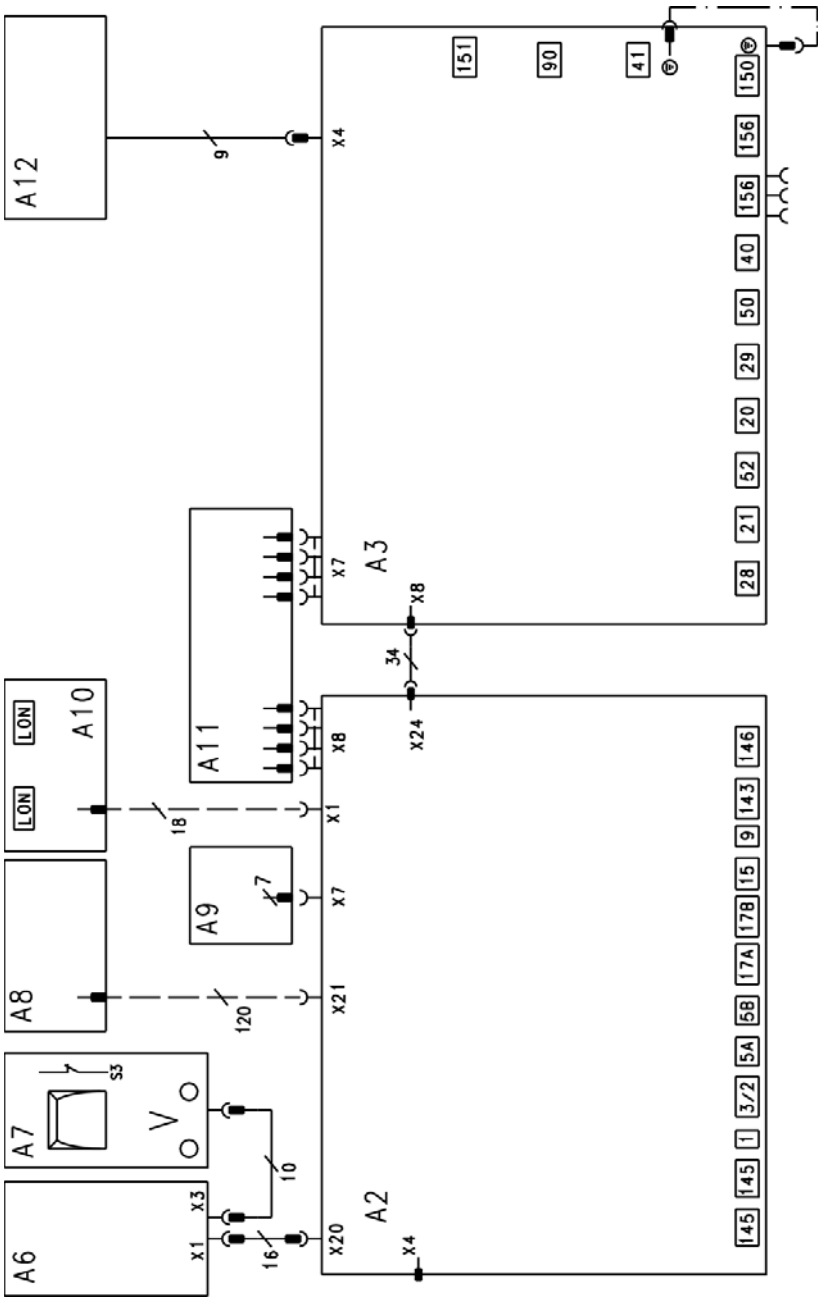
*1 Party mode ends automatically in the "Heating and DHW" heating program when the system changes over to operation with standard room temperature.

"Heating Circuit 1", "Heating Circuit 2", "Heating Circuit 3" Group *(continued)*

Coding in the factory set condition		Possible change	
F2:8	Time limit for party mode or external heating program changeover via pushbutton: 8 h*1. **Note:** Observe settings of coding addresses "5D", "5E", "5F" in the "General" group, as well as "D5" and "D8" in the "Heating circuit..." group.	F2:0	No time limit*1.
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h*1.
F8:-5	Temperature limit for raising reduced mode 23° F (-5° C); see example on page 67. Observe the setting of coding address "A3".	F8:+10 to F8:-60	Temperature limit adjustable from +50 to -76° F (+10 to -60° C).
		F8:-61	Function disabled.
F9:-14	Temperature limit for raising the reduced set room temperature 7° F (-14 °C); see example on page 67.	F9:+10 to F9:-60	Limit for raising the set room temperature to the value selected for standard mode adjustable from +50 to -76° F (+10 to -60° C).
FA:20	Raising the set boiler water or supply temperature by 20% when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 68.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %.
FB:30	Duration for raising the set boiler water or supply temperature (see coding address "FA") 60 min. See example on page 68	FB:0 to FB:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min.

*1 Party mode ends automatically in the "Heating and DHW" heating program when the system changes over to operation with standard room temperature.

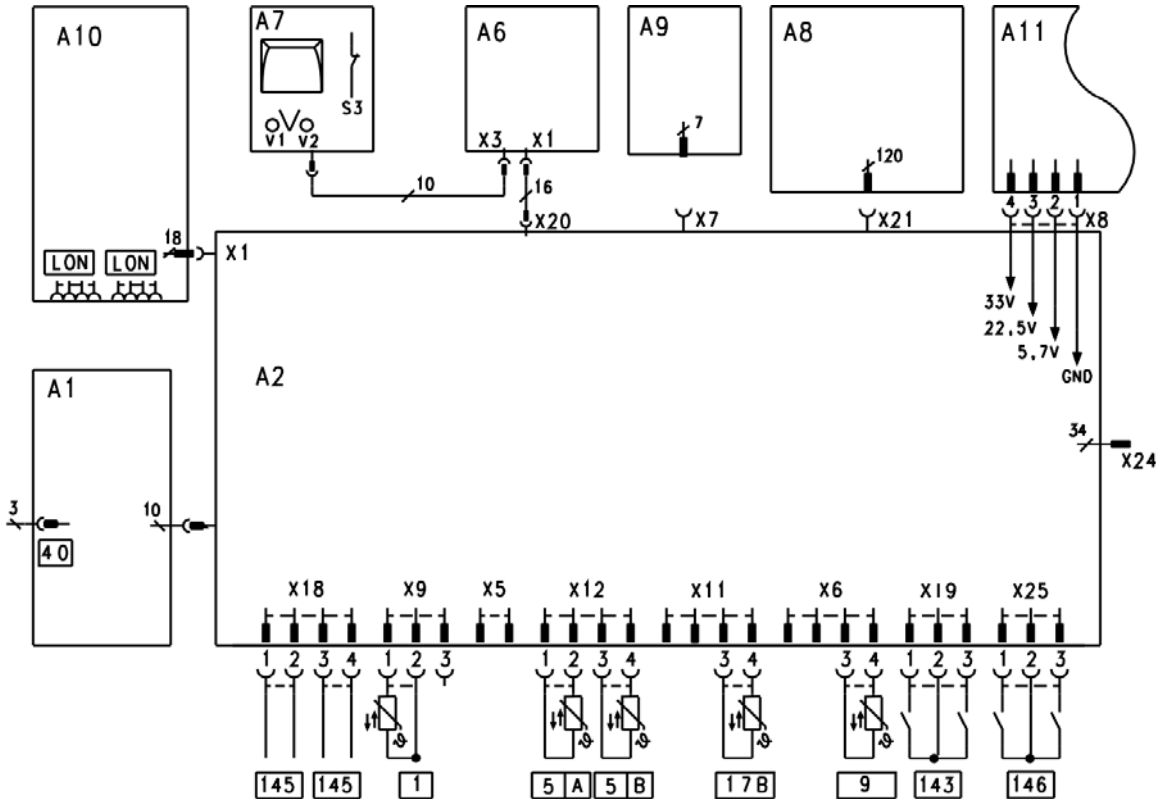
Connection and Wiring Diagram



A1 PCB, extension for heating circuit 2 and 3 with mixing valve (optional accessory)
A2 PCB, low voltage
A3 PCB 120V ~
A6 Programming unit
A7 Optolink PCB/emissions test switch
A8 PCB
A9 Boiler coding card
A10 LON communication module (accessories)
A11 Power supply unit PCB
A12 Programming unit ON/OFF switch
X Electrical interfaces

Connection and Wiring Diagram *(continued)*

Main PCB low voltage



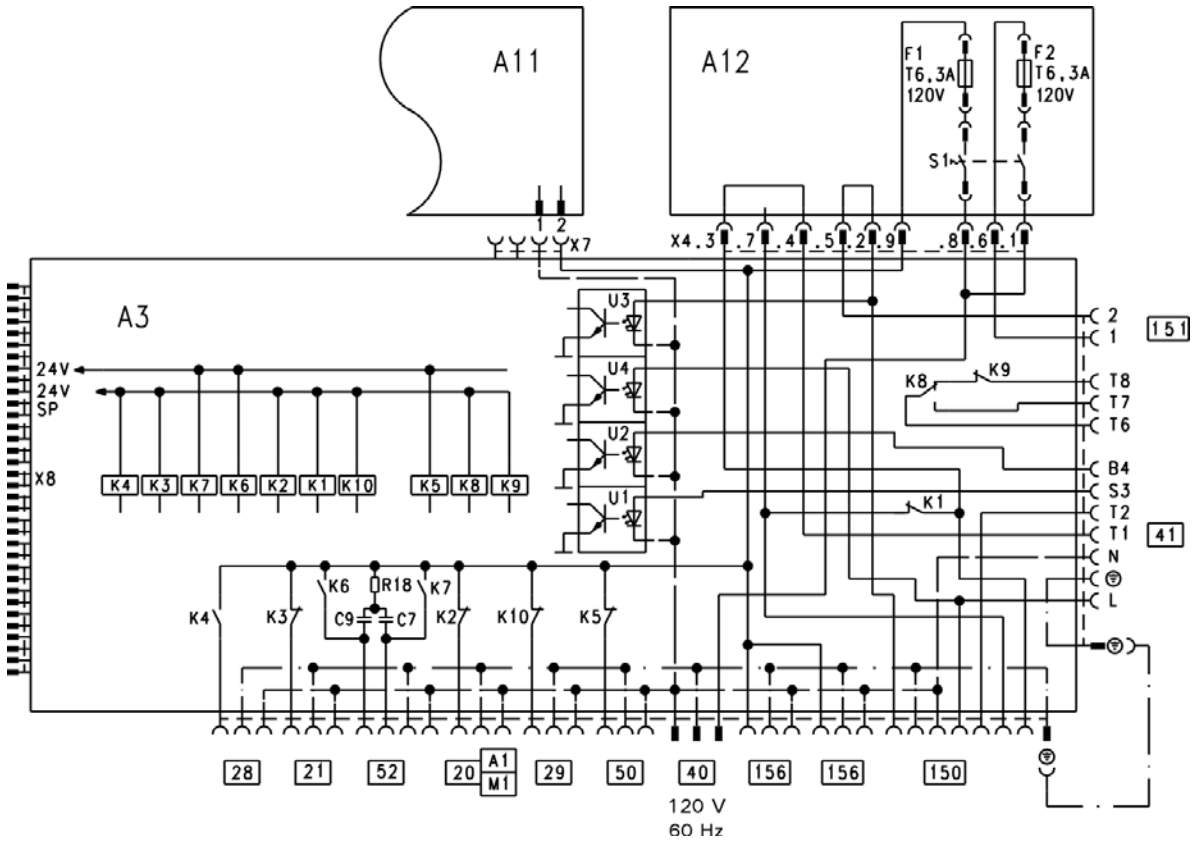
Legend

1	Outdoor air temperature sensor (No function)
3	Boiler water temperature sensor
5 A	No function
5 B	No function
9	No function
15	Flue gas temperature sensor
17 A	Therm-Control temperature sensor or Return temperature sensor T1
17 B	Return temperature sensor T2
143	External hook-up
145	KM BUS participant
146	External hook-up
LON	Connecting cable for data exchange (accessory)
S3	Emissions test switch ""
V1	Fault indicator (red)
V2	ON indicator (green)
X	Electrical interfaces

5693 973 - 05

Connection and Wiring Diagram *(continued)*

PCB 120V~

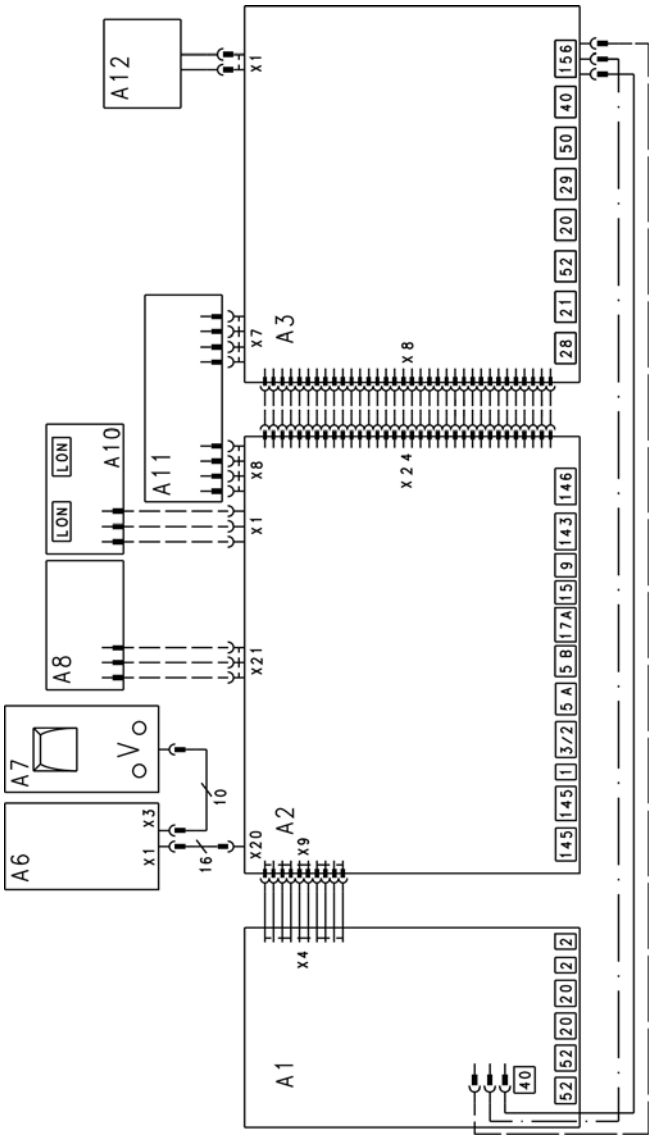


20 A1 High temperature circuit pump
21 DHW circulation pump
28 DHW recirculation pump
29 Accessories pump
40 Power supply, 120V/60 Hz
41 Burner (call for heat)
50 Central fault message
52 A1 Isolation valve
or
3-way mixing valve, primary store system (optional accessory)
150 External connections, e.g. supplementary safety equipment
151 Safety chain, potential free
156 Power supply for accessories

F1, F2 Fuse/MCB
K1-K10 Relay
S1 ON/OFF switch
X Electrical interfaces

Connection and Wiring Diagram

Overview

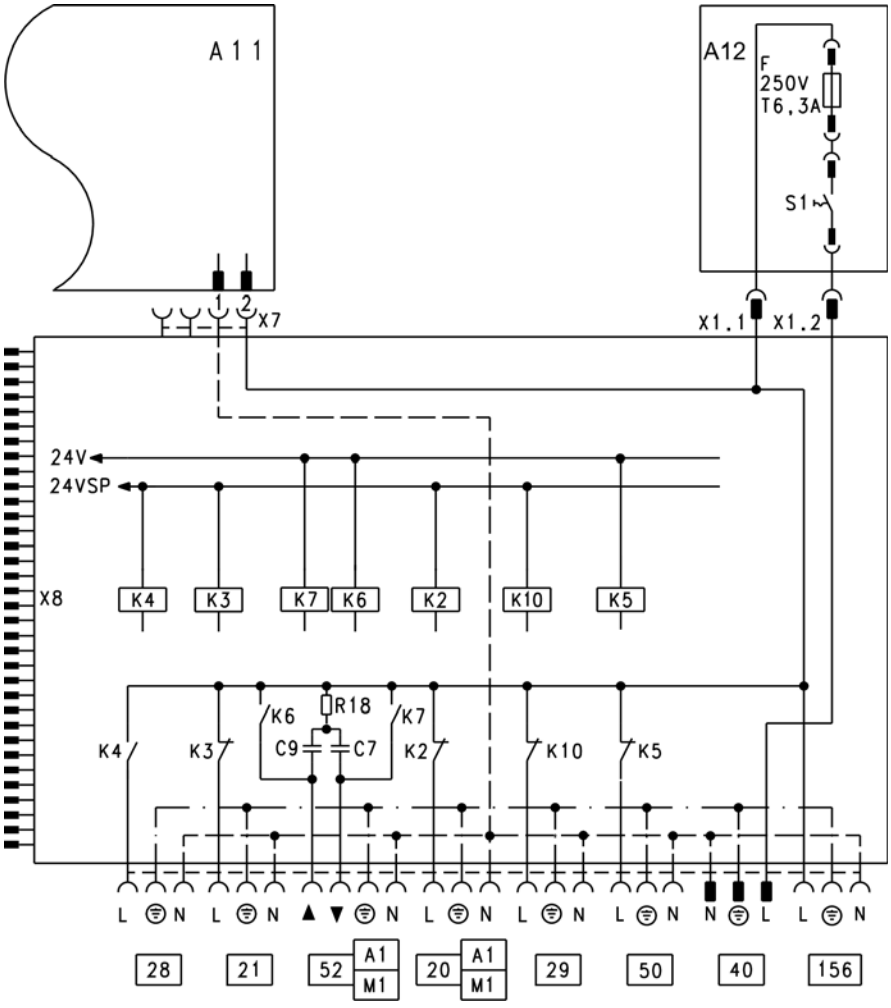


Legend

A1 PCB, extension for heating circuits 2 and 3 with mixing valve
A2 PCB low voltage
A3 PCB 120V~
A6 Programming unit
A7 Optolink PCB/emissions test switch
A8 PCB
A10 LON communication module (accessory)
A11 Power supply unit PCB
A12 ON/OFF switch
X Electrical interfaces

Connection and Wiring Diagram *(continued)*

PCB 120V~

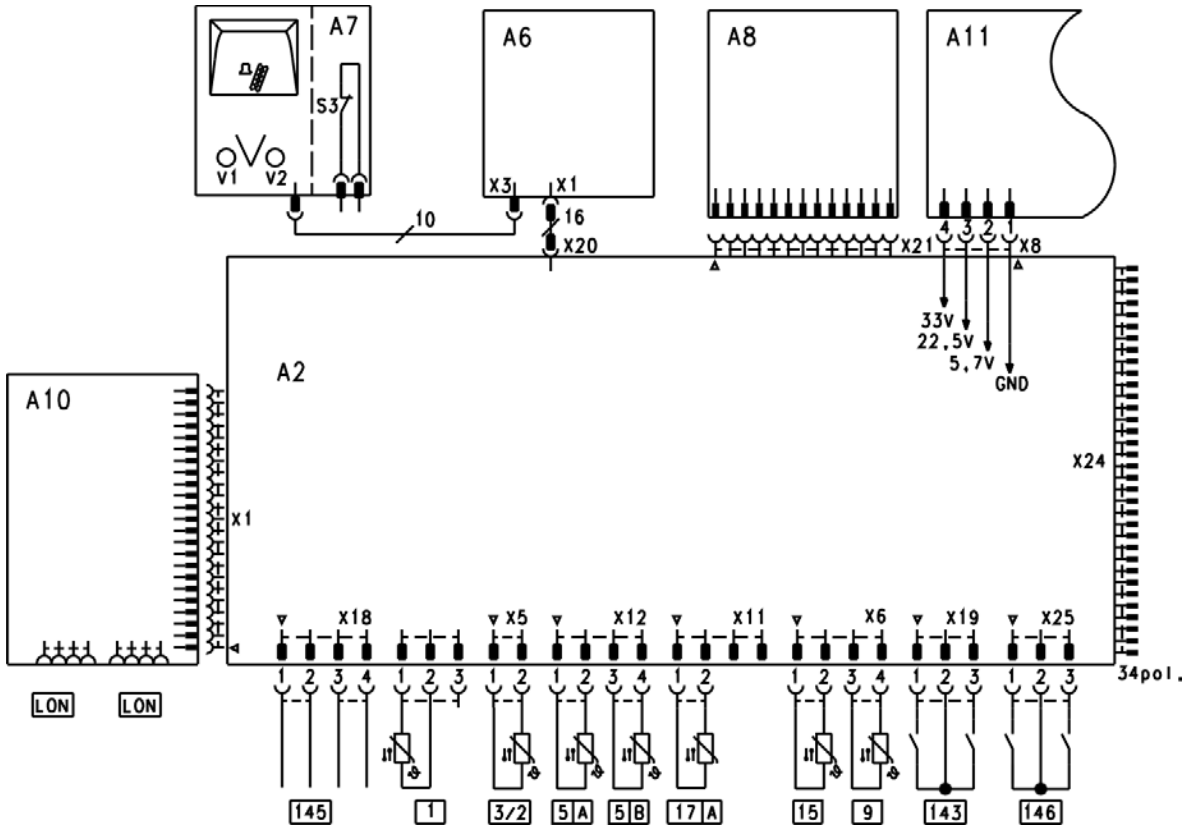


Legend

20	Heating circuit pump
21	Circulation pump for DHW tank heating (accessory)
28	DHW recirculation pump (on site)
29	Shunt pump or distribution pump (on site)
40	Power supply, 120V/60 Hz
50	Central fault message
52	Motor for 3-way mixing valve, primary store system
156	Power supply connection for accessories
F	Fuse
K1-K10	Relay
S1	ON/OFF switch
X	Electrical interfaces

Connection and Wiring Diagram *(continued)*

PCB low voltage

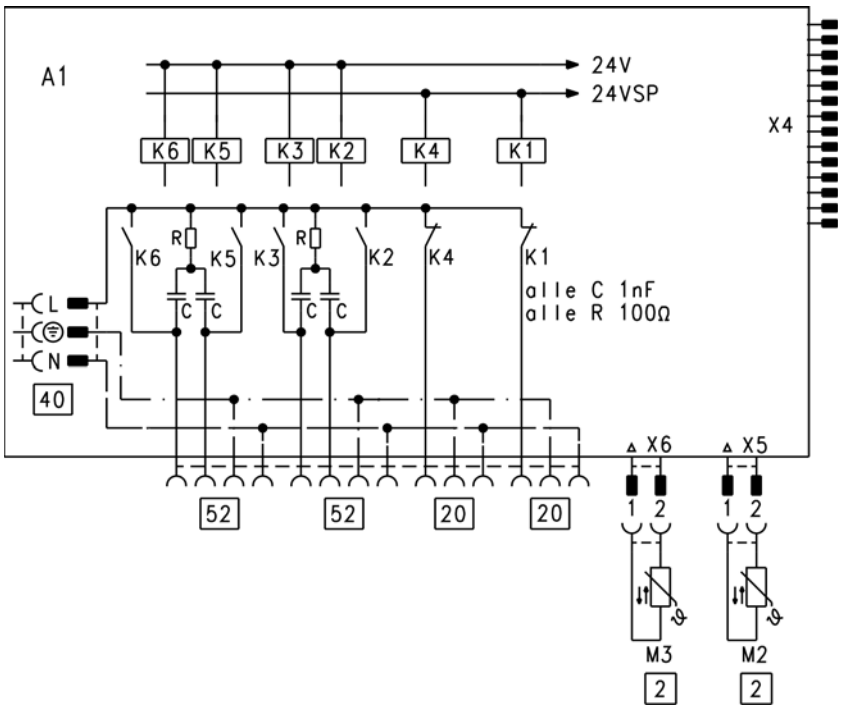


Legend

1	Outside temperature sensor
2	Supply temperature sensor
5 A	DHW tank temperature sensor
5 B	DHW tank temperature sensor 2 for primary store system)
9	No function
15	No function
17 A	No function
17 B	Return temperature sensor T2 or Temperature sensor primary store system
143	External hook-up
145	KM BUS participant
146	External hook-up
LON	Connecting cable for data exchange (accessory)
S3	Emissions test switch ""
V1	Fault indicator (red)
V2	ON indicator (green)
X	Electrical interfaces

Connection and Wiring Diagram *(continued)*

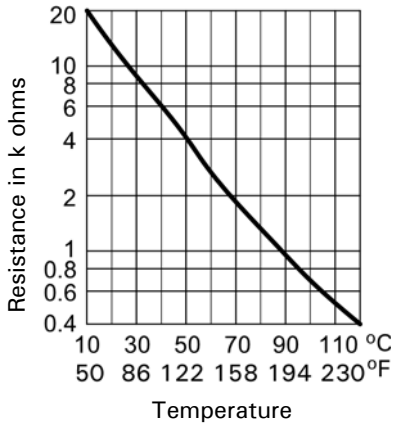
PCB, extension for heating circuits 2 and 3 with mixing valve



Legend

2	Supply temperature sensors
20	Heating circuit pumps
40	Power supply
52	Mixing valve motors
K1-K6	Relay
X	Electrical interfaces

Sensors



Boiler water, DHW tank, supply, return and room temperature sensors

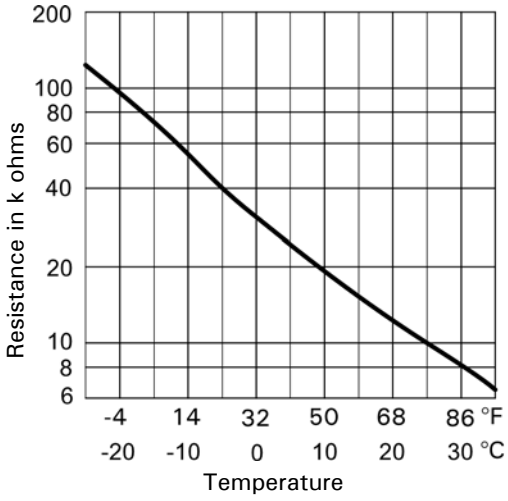
Note:

- The supply temperature sensor can be used as a contact or immersion temperature sensor.
  Note: The supply temperature sensor in the mixing valve extension kit is a contact temperature sensor.
- The room temperature sensor is connected at terminals 3 and 4 in the Vitotrol 300A.

Installation and service instructions, Vitotronic 200-H

Viessmann NTC 10 kΩ (blue identification)

1. Pull corresponding plug.
2. Check the sensor resistance and compare it with the curve.
3. In the case of severe deviation, check the installation and replace the sensor if required.



Outside temperature sensor

Viessmann NTC 10 kΩ (blue identification)

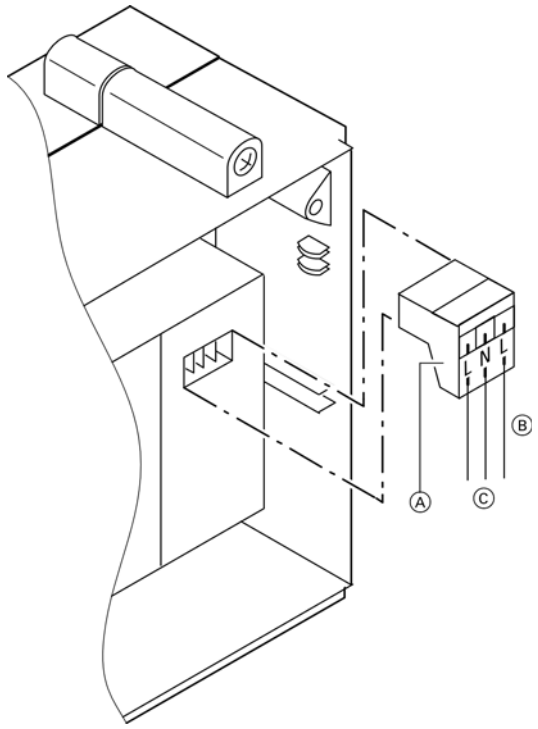
1. Pull plug [1].
2. Check the sensor resistance across plug terminals “1” and “2” and compare with the curve.
3. If the results are very different from the curve, disconnect the wires from the sensor and repeat the test on the sensor.
4. Depending on the result, replace the lead or the outside temperature sensor.

5693 973 - 05

Boiler Coding Card

Boiler	Boiler coding card	
	Display in brief scan	Part no.
Vitocrossal 200, type CM2	1042	7841113

Mixing Valve Motor Kit



▲ Mixing valve “Open”
▼ Mixing valve “Closed”

Legend
Ⓐ Mixing valve plug
Ⓑ Field wiring
Ⓒ Connection to mixing valve adaptor

Components:
- Mixing valve motor (not for flanged mixing valve)
- Connecting plug for the heating circuit pump
- Supply temperature sensor as contact temperature sensor for measuring the supply temperature, with connecting cable 19 ft. (5.8 m) long.

Changing the rotational direction (if required)

1. Insert 3-pin plug Ⓐ in the mixing valve motor rotated through 180°.
2. Check the rotational direction.

Manual mixing valve adjustment

Lift the motor lever, unhook the mixing valve handle and pull plug Ⓐ.

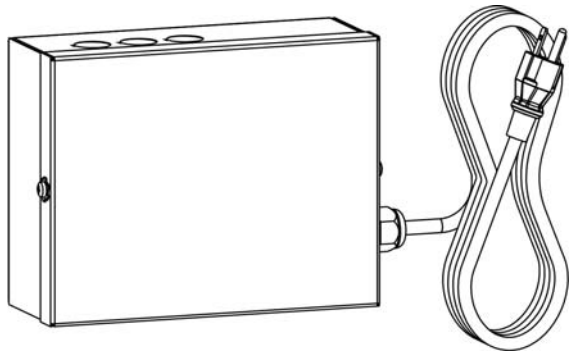
Specification mixing valve motor

Rated voltage	120V~
Rated frequency	60 Hz
Power consumption	4 W

Permissible ambient temperature

■ during operation	32 to 104° F (0 to +40° C)
■ during storage and transport	-4 to +149° F (–20 to +65° C)

Extension EA1 Accessory (optional)



Digital data inputs DE1 to DE3

Functions:
- External heating program changeover, separate for heating circuits 1 to 3
- External blocking
- External blocking with fault message input
- External demand with minimum boiler water temperature
- Fault message input
- Brief operation of the DHW recirculation pump

When connecting external contacts, observe the requirements of safety category II, i.e. 8.0 mm air-gap and creep path or maintain a 2.0 mm insulation thickness against 'live' parts.

Input function assignment

Select the input functions by means of the following codes in the "General" group at the boiler control unit:
- DE1: Coding address "5D"
- DE2: Coding address "5E"
- DE3: Coding address "5F"

Assigning the heating program changeover function to the heating circuits

The allocation of the heating program changeover to the relevant heating circuit is selected via coding address "D8" in the "Heating circuit..." group:

- Code "D8:1": Changeover via input DE1
- Code "D8:2": Changeover via input DE2
- Code "D8:3": Changeover via input DE3

The effect of the heating program changeover is selected via coding address "D5" in the "Heating circuit..." group.

Duration of the heating program changeover

- Contact constantly closed:
  The changeover is active as long as the contact is closed.
- Contact only closed briefly via pushbutton:
  The changeover is enabled for the time selected in coding address "F2" in the "Heating circuit..." group.

DHW recirculation pump runtime for brief operation

The DHW recirculation pump can be started outside the times when it is enabled according to the time program.

The DHW recirculation pump is started by closing the contact at DE1, DE2 or DE3 by means of a pushbutton. The runtime is adjusted via coding address "3D" in the "General" group.

Analogue input 0–10V

The 0–10V hook-up provides an additional set boiler water temperature:
0–1V Is taken as "no default for set boiler water temperature".

Note: Ensure DC separation between the LV output and the earth conductor of the onsite voltage source.

Coding address "1E" in the "General" group:
- "1E:0" ≙ temperature demand adjustable in the range from 32 to 212° F (0 to 100° C) 1V ≙ 50° F (10° C) set value change 10V ≙ 212° F (100° C) set value change
- "1E:1" ≙ temperature demand adjustable in the range from 86 to 248° F (30 to 120° C) 1V ≙ 86° F (30° C) set value change 10V ≙ 248° F (120° C) set value change

Output 157

Connection of a central fault messaging facility or signalling reduced mode (reduction of the heating circuit pump speed).
Select the function of output 157 via coding address "5C" in the "General" group.

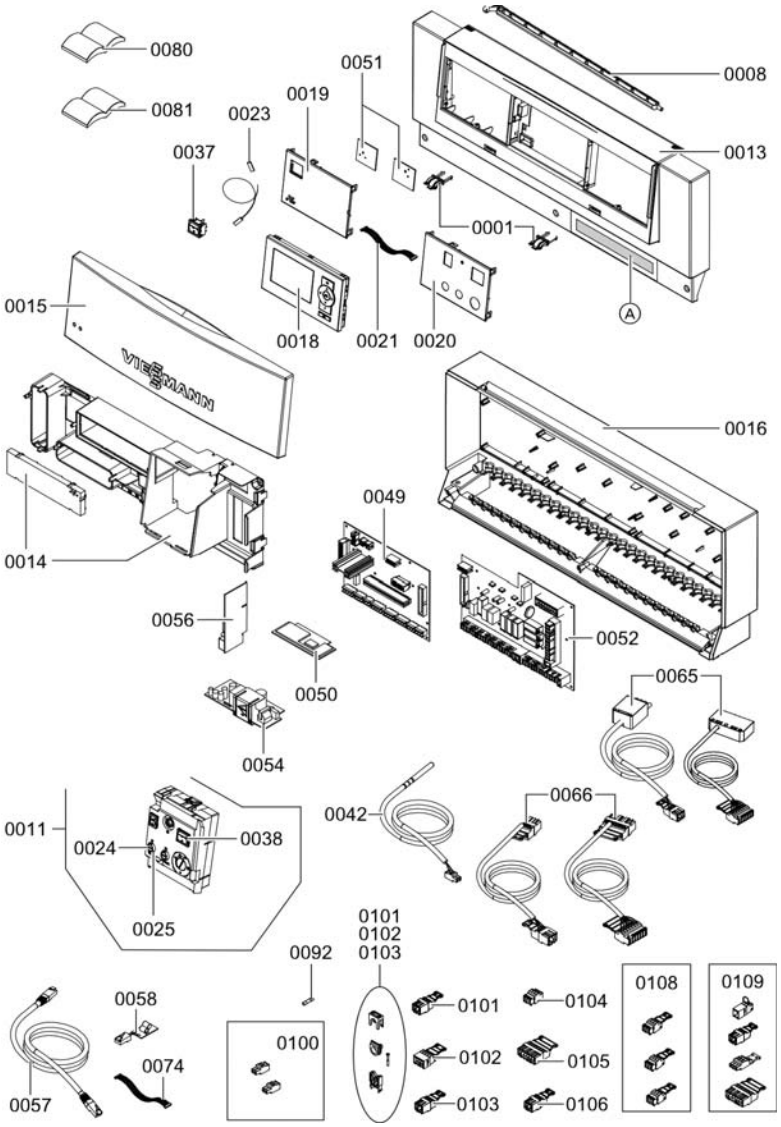
Refer to the EA1 module Installation Instructions

5693 973 - 05

Parts List Vitotronic 300, GW5B

Ordering Replacement Parts:
Please provide model no. from rating plate and serial no. when ordering replacement parts. Order replacement components from your Viessmann distributor.

Parts
0001 Hinge
0008 Supporting stay
0011 Safety valve with wiring
0013 Casing front with frame
0014 PCB cover
0015 Front flap
0016 Casing, rear section
0018 Programming unit
0019 Fascia, left
0020 Fascia, right
0021 Ribbon cable, 14-pole
0022 Connecting cable for extension for heating circuit 2 and 3 with mixing valve
0023 Connecting cable, emissions test switch
0024 Fuse holder cap for control fuse
0025 Fuse holder for control fuse
0037 Emissions test switch, single-pole
0038 ON/OFF switch, 2-pole
0040 Outside temperature sensor [1]
0042 Temperature sensor with plug
0045 Contact temperature sensor with plug (supply temperature sensor)
0048 PCB, extension heating circuits 2 and 3 with cover
0049 PCB, low voltage
0050 PCB
0051 PCBs, Optolink and emissions test switch
0052 PCB 120V~
0054 Power supply unit PCB
0056 LON communication module
0057 LON cable
0058 Terminator (2 pieces)
0074 Connecting cable
0080 Installation and service instructions
0081 Operating instructions
0092 Fuse 6.3 A/250V~, slow
0100 Plug for LV (7 pieces)
0101 Plug for pumps (3 pieces)
0102 Plug [52] (3 pieces)
0103 Plug [156] (3 pieces)
0104 Power plug [40] (3 pieces)
0105 Plug [150]
0106 Plug [50] (3 pieces)
0108 Plug [143], [145], [146] (3-pole)
0109 Burner plug (3-pole)



Parts List Vitotronic 300-K

Ordering parts

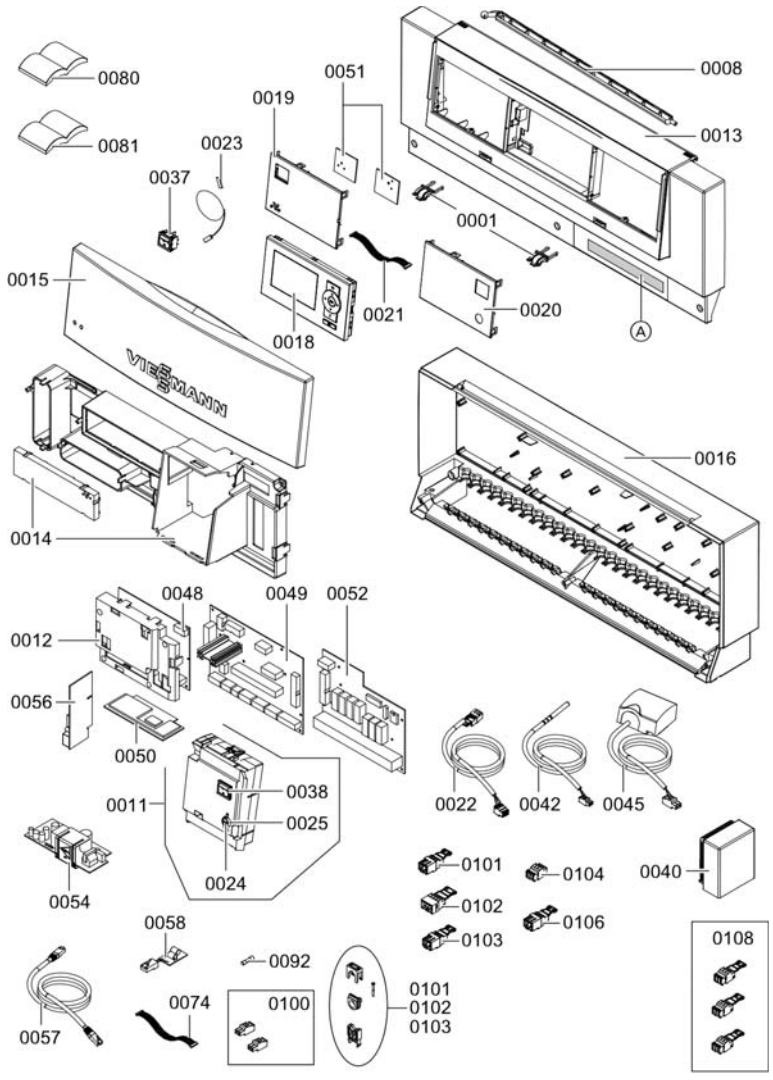
The following information is required:

- Serial no. (see type plate Ⓐ)
- Position number of the part (from this parts list)

Obtain standard parts from your local supplier.

Parts

0001 Hinge
0008 Supporting stay
0011 Safety valve with wiring
0012 PCB cover, extension for heating circuits 2 and 3 with mixing valve
0013 Casing front with frame
0014 PCB cover
0015 Front flap
0016 Rear section of enclosure
0018 Programming unit
0019 Fascia left
0020 Fascia right
0021 Ribbon cable, 10-pole
0022 Connecting cable for extension for heating circuits 2 and 3 with mixing valve
0023 Connecting cable, emissions test switch
0024 Fuse holder cap for control fuse
0025 Fuse holder for control fuse
0037 Emissions test switch, single-pole
0038 ON/OFF switch, 2-pole
0040 Outside temperature sensor [1]
0042 Temperature sensor with plug
0045 Contact temperature sensor with plug (supply temperature sensor)
0049 PCB low voltage
0048 Extension for heating circuits 2 and 3 with mixing valve
0050 PCB
0051 PCBs, Optolink and emissions test switch
0052 PCB 120V~
0054 Power supply unit PCB
0056 LON communication module
0057 LON connecting cable
0058 Terminator (2 pce)
0074 Connecting cable, 16-pole
0080 Installation and service instructions
0081 Operating instructions
0092 Fuse 6.3 A (slow)/250V~
0100 Plug for LV (7 pce)
0101 Plug for pumps (3 pce)
0102 Plug [52] (3 pce)
0103 Plug [156] (3 pce)
0104 Power supply plug [40] (3 pce)
0106 Plug [50] (3 pce)
0108 Plug [143], [145], [146] (3-pole)



5693 973 - 05

Specification Vitotronic 300, GW5B

Rated voltage	120V~
Rated frequency	60 Hz
Rated current	2 x 6A~
Power consumption	10 W
Permissible ambient temperature:	
■ During operation	32 to 104° F (0 to +40° C) Installation in living spaces or boiler rooms (standard ambient conditions)
■ During storage and transport	-4 to 149° F (−20 to +65° C)

Rated relay output breaking capacity at 120V~

20	Primary pump, primary store system or Circulation pump – flue gas/water heat exchanger	2A~ *1
21	Circulation pump for DHW tank heating	2A~ *1
29	Shunt pump or boiler circuit pump	2A~ *1
50	Central fault message	2A~ *1
52	Isolation valve Mixing valve motor, return temperature raising facility or Motor, 3-way mixing valve, primary store system	0.1A~ *1
41	Burner	3A~

*1 Total max. 6A~ (shared between all 120V outputs)

Specification Vitotronic 300-K

Rated voltage	120V~
Rated frequency	60 Hz
Rated current	6A
Power consumption	10 W
Permiss. ambient temperature	
■ During operation	32 to 104° F (0 to +40° C) Installation in living spaces or boiler rooms (standard ambient conditions)
■ During storage and transport	-4 to 149° F (−20 to +65° C)

Rated relay output breaking capacity at 120V~

20	Heating circuit pump or Primary pump, primary store system	2A~ *2
21	Circulation pump for DHW tank heating	2A~ *2
28	DHW recirculation pump	2A~ *2
29	Shunt pump/distribution pump	2A~ *2
50	Central fault message	2A~ *2
52	Mixing valve motor, extension kit, mixing valve or Motor, 3-way mixing valve, return temperature control or Motor, 3-way mixing valve, primary store system	0.1A~ *2

*2 Total max. 6A~ (shared between all 120V outputs)

Quick Reference

°C	°F
-40	-40
-35	-31
-25	-13
-20	-4
-18	0
-16	+3
-14	+7
-12	+10
-10	+14
-9	+16
-8	+18
-7	+19
-6	+21
-5	+23
-4	+25
-3	+27
-2	+28
-1	+30
0	+32
+1	+34
+2	+36
+3	+37
+4	+39
+5	+41
+6	+43
+7	+45
+8	+46
+9	+48
+10	+50
+12	+54
+14	+57
+16	+61
+18	+64
+20	+68
+25	+77
+30	+86
+35	+95
+40	+104
+50	+122
+60	+140
+70	+158
+80	+176
+90	+194
+100	+212
+110	+230

Printed on environmentally friendly (recycled and recyclable) paper.

Technical information subject to change without notice.

Viessmann Manufacturing Company Inc.
750 McMurray Road
Waterloo, Ontario • N2V 2G5 • Canada
TechInfo Line 1-888-484-8643
1-800-387-7373 • Fax (519) 885-0887
www.viessmann.ca • info@viessmann.ca

Viessmann Manufacturing Company (U.S.) Inc.
45 Access Road
Warwick, Rhode Island • 02886 • USA
TechInfo Line 1-888-484-8643
1-800-288-0667 • Fax (401) 732-0590
www.viessmann-us.com • info@viessmann-us.com

5693 973 - 05